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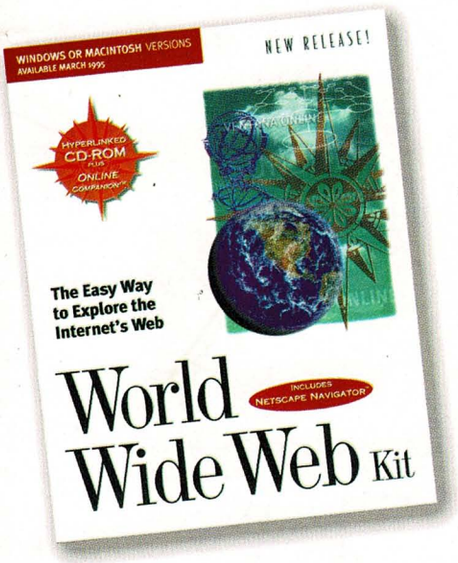
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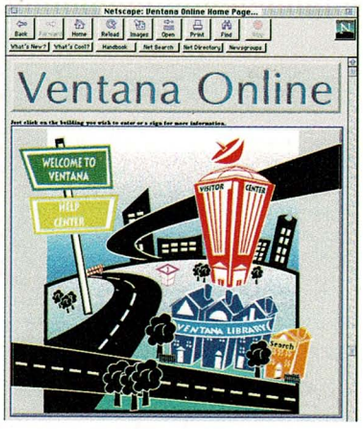
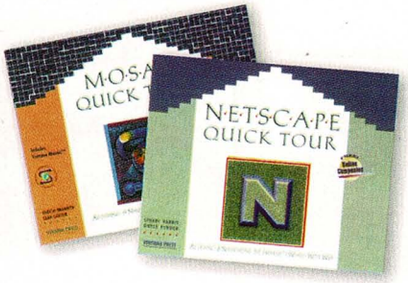
• A free one-year subscription to Online Companion. This on-line version of Walking the World Wide Web is updated daily. The regular addition of hot new attractions makes this a site worth visiting again and again. It also features access to Ventana Online's extensive services, including other online companions, pointers to great Internet resources, special interest areas and more.





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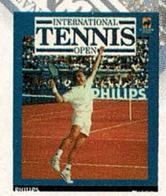

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Welcome to the world of top class tennis where you could become one of the world's greatest tennis players! Win the Grand Slam, tour Paris, London and New York, playing friendly matches and gruelling tournaments. You can choose from 4 different types of game: Training, Friendly match (against the computer), Friendly (against another player) and Tournament. Select 3 levels of game and play on different surfaces: Clay, Grass and Cement.

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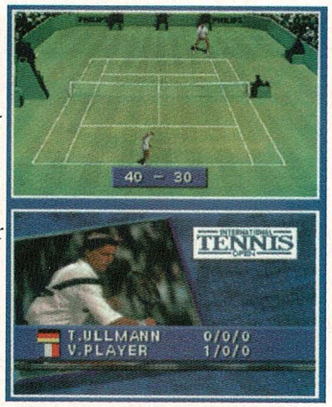
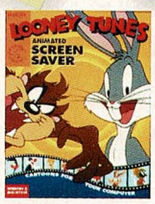
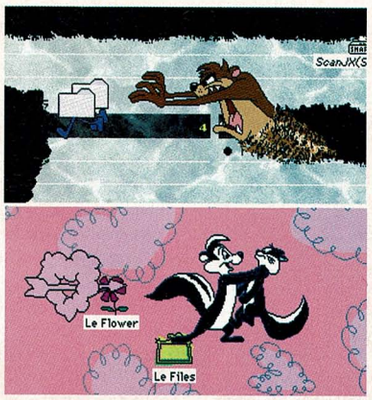


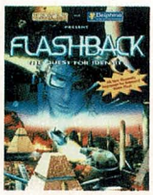


Looney Tunes.

Twelve gut-busting Looney Tunes screen-saving cartoons—the funniest screen saver ever! Stunning animation, music, sound effects and Looney Tune voices. Grab a bite with the Tasmanian Devil; Rendezvous with Pepe Le Pew; Invade Earth with Marvin the Martian; Bugs Bunny, Wile E Coyote, Road Runner, Sylvester & Tweety and more. All of your favourite Looney Tunes characters!

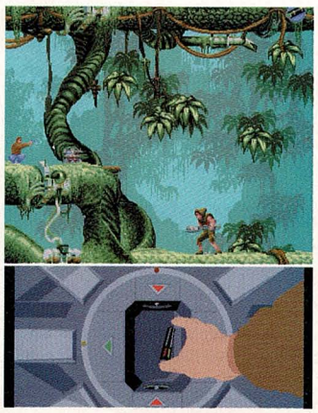
ESP CD or Floppy £25.52





Flashback.

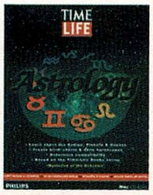
From the people who brought you Another World. Flashback is a futuristic action adventure that sets you in an alien world where you must battle to find yourself and your way back home. Combines stunning animation, movie style sequences, dynamic, full and rich sound effects with characters that come to life with speech. 7 challenging levels of action and 5 graphically detailed planets. If you liked Another World you'll love Flashback! **ESP £25.52**



Triazzle.

Journey to the rainforest with the world's first Living Puzzle. Based on the best selling game by Dan Gilbert, Triazzle will entertain the entire family with high-quality graphics inspired by the rainforest. You'll be able to choose from three different backgrounds and animal groups reflecting the environment. There's also a Triazzle Junior option for kids, as well as Star Triazzle for a real challenge. As a special bonus the CD ROM version includes a special After Dark screen saving displaying featuring characters from the Triazzle game!

ESP CD or Floppy £21.27



Astrology.

Your guide to the Zodiac, Planets, Houses, Aspects and Elements that make up the ancient and fascinating art of Astrology. Print out your birth chart, see what the future holds... or check your compatibility with friends, lovers and celebrities. Learn all about the history and principles of Astrology with this interactive CD ROM.

ESP CD £21.27

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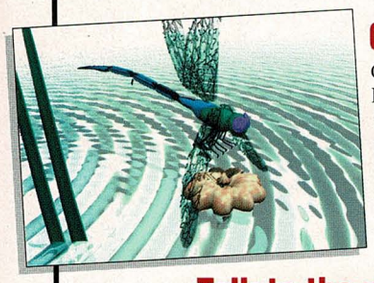
MACFORMAT

ISSUE 26 ■ JULY 1995

The Finder

HOW TO...



Get moving in 3D 58

Over the last several months, our series has shown you how to create fantastic 3D images – but now it's time to take the final step and make them move! We look at how you can use your Mac and the best 3D programs to create stunning and realistic animation.

Talk to the world with TeleFinder 64

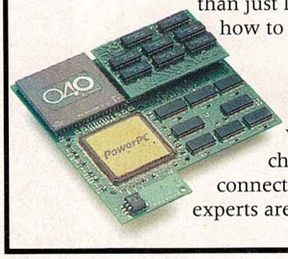
Discover the world of bulletin boards as we explore *TeleFinder 3.5* – it not only makes comms easier to use, but also enables you to connect to the Internet. All the software you need is yours on this issue's CD-ROM, plus a month's free connection! (Modem not supplied.)

Database basics 69

A database is one of the most useful tools there is. MACFORMAT goes back to basics and explains how you can have a Filofax on your Mac.

Analyse responses using HyperCard 72

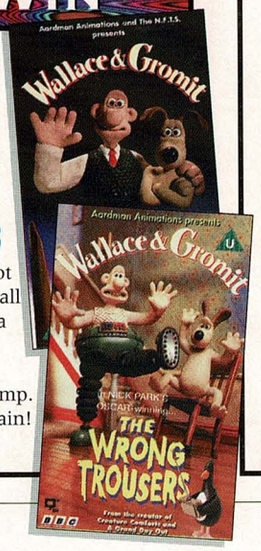
You can do a lot more with Apple's versatile 'multimedia' program than just look at its graphics. This issue we show you how to make *HyperCard* truly interactive.



Mac Answers 75

Your Mac questions answered – from changing the icons of your folders to connecting a non-Mac printer to your Mac, our experts are scared of nothing.

WIN WIN WIN WIN



Wallace and Gromit videos 137

This issue you can learn how Aardman make their models come to life with the help of Macs – and you could win some of the finest work they've done!

Samsung 17GL monitor 138

Our regular competition may not be the National Lottery, but it's all ours. This issue, you could win a gorgeous Samsung SyncMaster 17GL 17-inch monitor for the mere price of a postcard and stamp. Never worry about eyestrain again!

REGULARS

Welcome to MACFORMAT 6

All you want to know – and yes, Derek really *does* look like that...

News 19

What's in the next Operating System you could be running, new standards for CD-ROM, and why Macs should be getting easier to get hold of. And could *Doom II* be the Mac game of the year?

What's New 24

An exciting new 3D modelling program from France and the latest low-cost printer from Apple are just some of the delights MACFORMAT's product news section has in store this month.

MacroScope: Behind the News 28

Why would 750 people go to Cannes for two days and not just hang out on the beach? The answer is the Apple New Media Forum – find out what happened in our report.

Apple Talk: Letters 36

Is Apple's multimedia console a white elephant? How easy is it to buy a Mac? And is a Mac really better than a PC? MACFORMAT readers speak their minds on everything Mac-related...

Soapbox: 'stop the memory madness' 113

As Macs get leaner, software just gets fatter, says a MACFORMAT reader.

Special Reader Offers 114

After you've read our review of *Cinemania '95*, you can buy it with a top Apple CD-ROM drive at a bargain price – and there's more!

Back Issues 116

Complete your MACFORMAT collection before they're gone!

Gamebusters 128

Our hero Guy continues his quest to discover *The Secret Of Monkey Island* – and you can help him with part two of our solution.

Free Reader Ads 130

Pick up a bargain or get in touch with your nearest Mac user group.

Buying Advice 132

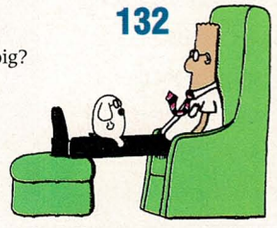
Know your rights with MACFORMAT's straightfoward guide.

Dilbert 132

Is our hapless computer engineer a sexist pig?

Next Month 137

You mean there's more? Next month, yes. Find out what we've got in store for you next time, when we go globetrotting.



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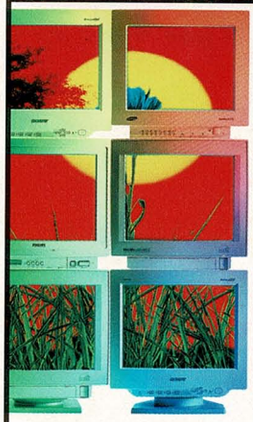

Screen Test 80

We test a selection of 15-inch and 17-inch monitors for your Mac, and find out which one is a sight for sore eyes.

Apple MS15 / MS17 81
Hitachi 15MVX / 17MVX 82
NEC XE15 / XE17 82
Philips Brilliance 15A / 17T 83
Samsung 15GL / 17GL 83
Sony Multiscan SF1 / 17SF 84
Taxan 580plus / 880LR 84

Multimedia: Cinemania '95 93

Bring the cinema into your home with the 1995 edition of Microsoft's comprehensive reference guide to best of the flicks.

Multimedia: Circus 94

We take a trip to the circus and discover how interactive this kids' multimedia cartoon really is – and we're not just clowning around.

Rock Multimedia

If you've looking for good music on CD-ROM, you've had to take the rough with the smooth so far. Can these grand masters of rock improve on their predecessors?

Bob Dylan: Highway 61 Interactive 98
Yes Active 99

DIY Multimedia

Find out how to do-it-yourself with these guides – full of handy hints and tips...

Mangia! 100
Understanding Exposure 101
The Home Botanist 102
Home Repair Encyclopaedia 103

Music: Visual Arranger 105

Like to make music but can't play a note? We try out a program that offers a no-hassle way to write top tunes at a bargain price.

Shareware Heaven 109

We taste the cream of free and bargain software, including the first ever Mac beat-'em-up. It's not what you're expecting, though...

Games Reviews

Cartoons you can play are just some of this month's bag of goodies to challenge your logic and reflexes.

King's Quest VII 118
Night Trap 121
Corpse Killer 121
Dragon's Lair 122
Space Ace 123
Ishar 1, 2 & 3 124
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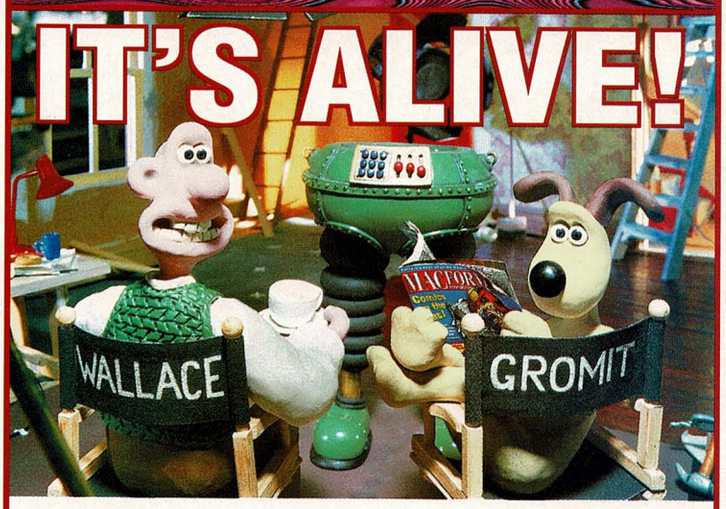
FEATURES



Animation on the Mac 43

Discover the tricks behind the magic of the moving image on your Mac. MACFORMAT looks at the programs you need to make superb animation – from cartoons to morphing – while the professionals give their insights and offer tips.

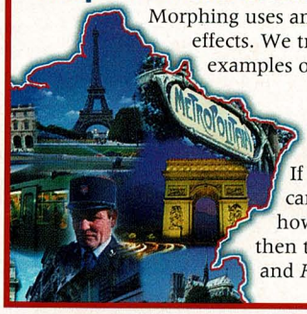
Secrets of Mac animation 44

How does animation work? We look at the basic process, show how games are animated and visit the world-famous Aardman studios.

Animation programs 48

We give *PROmotion, Animation Works, Amazing Animation, Scenery Animator* and *Flipbook* the MACFORMAT test – which one's best for you?

Morph vs Elastic Reality 52



Morphing uses animation techniques to give incredible effects. We try two of the best programs – with examples of what they do on the CD-ROM.

Translation programs 89

If you can't understand a foreign language, can your Mac translate for you? We ask how much a translation program can do, then test how well *Power Translator Professional* and *French Assistant* speak the lingo.

COVER DISKS

MACFORMAT comes with a choice of CD-ROM or high-density disk each month:

Your CD-ROM 8

Demos of *PROmotion, StrataStudio Pro, Morph* and *Elastic Reality* – over 100Mb of animation software! Plus: go back in time, to the circus or even to Newport with our multimedia demos. Also: the latest share-ware from the Net, and everything below...

Your Cover Disk 12

Get animated with our complete animation programs and protect your Mac from viruses with the latest version of *Disinfectant*. Plus four great games and heaps of invaluable utilities!

Welcome to MACFORMAT

Everything there is to know about MACFORMAT! (And you thought Britain's top Mac mag had to be produced on high-end Macs!)

ABOUT OUR WRITERS

ALEX SUMMERSBY

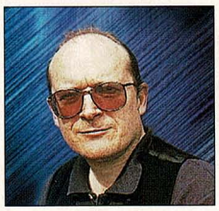
In the exalted post of editor of MACFORMAT, Alex has a IIsi with a whopping 5Mb of RAM. But he's not bitter: he says he wouldn't have learned so much about Macs if it had all been too easy. But he still thanks God for *RAM Doubler*.

DEREK SMITH

MACFORMAT's Technical Writer compiles our cover CD using a Centris with 8Mb of RAM. But he wants the world to know that he's just had a VRAM upgrade and can now view all those dubious shareware pictures in full colour.

RICHARD HILL

Rich is MACFORMAT's multimedia man, and he says it's a barrel of laughs running the latest CD titles on his Performa 630 with 8Mb of RAM. It's not size that counts, he says. But he's about six foot six, so what would he know.



BRIAN LARKMAN

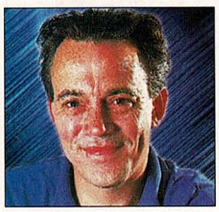
Our graphics tutorial expert, Brian teaches computer graphics at a college using top-spec Macs and owns a PowerMac 7100, making a cumulative total of about 136 gigabytes of RAM. Kids, don't try this at home on an LCII.

MARCUS DYSON

Marcus works as a graphic designer for a top software house, but back when he were one of Future Publishing's art editors, he counted himself lucky to have 5Mb of RAM. Kids nowadays, he says, don't know they're born.

ROD LAWTON

MACFORMAT's *HyperCard* whizz, Rod once wrote an interactive multimedia tutorial stack that ran in 1Mb of RAM. It had to – that's what he had. As Future's computer book editor, of course, he now has *much* more. At *least* 2Mb.



ANDY STORER

Our other multimedia man, Andy is a veteran computer journalist, so he knows the value of RAM. Over the last ten years, he's collected 48Mb worth of SIMMs out of his old Macs. Unfortunately none of them fit in his LC475.

ABOUT MACFORMAT

Welcome again to MACFORMAT, Britain's best-selling Mac magazine! Whether you're a veteran or a novice, we'll help you get more out of your Macintosh, whatever you use it for!

Every month, MACFORMAT brings you *tips*, techniques and tutorials covering the range of Mac applications, from graphics, DTP, education, spreadsheets and databases to music, comms and games.

We'll bring you *features* about exciting Mac developments and novel uses, accompanied by cover disk programs whenever possible, so you can discover what your machine can do and try things you haven't tried before (like animation).

We'll keep you up-to-date with all the Mac-related *news*, and also keep you informed about the wider issues, the people behind the headlines and the stories behind the stories.

We'll bring you authoritative *reviews* of interesting and affordable products, with clear buying recommendations. MACFORMAT does not review demos or unfinished programs. We review only the finished products you could buy yourself, to help you decide whether to buy or not.

MACFORMAT's covermounted *disks and CD-ROMs* offer you demos so you can try software before you buy, useful utilities (specially chosen to complement features in the magazine), selected shareware programs, games, readers' contributions and more, every month.

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Every MACFORMAT review is designed to inform you in detail what you'd be getting if you bought the product and help you decide whether it's worth your money. It tells you the essentials, without jargon.

MACFORMAT reviews only finished products, and we rate them on this scale:

- 80+% means excellent.
- 70+% means well worthwhile, though not outstanding.
- 60+% means good, but with a few shortcomings or some limitations.
- 50+% means acceptable but flawed.
- A rating below 50% means think carefully before parting with your money.

The MACFORMAT Classic Award

If a product earns a rating of 90% or more, we'll give it a MACFORMAT Classic Award. This means what it says: we judge the product to be a classic, a standard-setter of its type, something really special.

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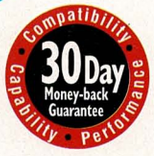

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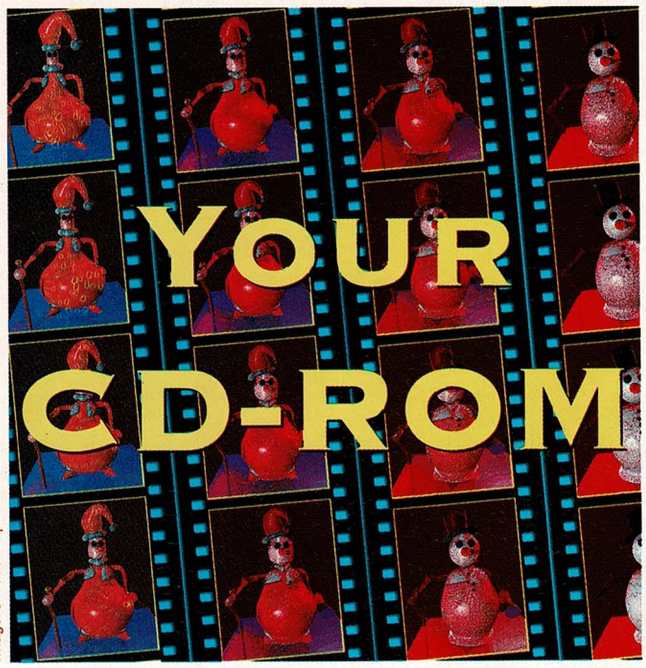


Image © 1995 Inspiration.FX.

It's silver, it's shiny, it's round, but it's not a UFO – it's the MACFORMAT cover CD and here to guide you through the contents is Derek Smith.

This month's theme is animation, so there's plenty of software demos and examples of what can be achieved on the Mac. Many of the demos are in the Demos folder, but you'll also find aliases of them in the Animation folder, along with all the other animation software. Let's take a look at what all these folders are for. If you're not a animation aficionado don't panic, we've got a load of other stuff as well!

- **Animation:** tons of software on the theme of animation.
- **Highlights:** aliases of the best bits of the CD to get you started more quickly.
- **Demos:** interactive and rolling demos of software featured in MACFORMAT.
- **Floppy**: contains everything that is on the floppy disk, plus some extra stuff.
- **Shareware City:** all the best shareware released onto the Internet over the last month.
- **Interactive Arts:** special multimedia production by students at the Newport School of Art and Design.
- **TeleFinder:** all the software you need to log on to the Highlander bulletin board system.
- **SoftWindows:** run *Microsoft Windows* on your Mac with this demo of the non PowerMac version.
- **Resources:** includes the latest version of QuickTime, a new version of the virus checker *Disinfectant* and other goodies.
- **Shareware in MACFORMAT:** most of the programs featured in our shareware section, starting on page 109.
- **Readers' Corner:** the wonderful software sent in by you, the reader.

FLOPPY OR CD?

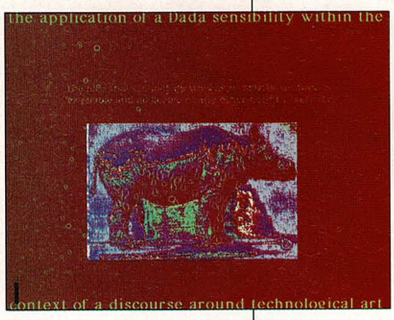
MACFORMAT is available in two editions every month: one with a CD-ROM and one with a high-density floppy disk. If you bought the CD-ROM edition, your CD includes a folder containing everything on the HD disk, details of which are on page 12.

Interactive Arts

Multimedia

Requires: System 7, 256 colours, 1Mb RAM

The Newport School of Art and Design have an exhibition in late June to show the work of their Art and Design students. Warming up for the event, they have produced this multimedia presentation showing work by many of their students. Much of it is experimental and is highly unusual, but gives you a whole new outlook on digital art. At any point duing the program, clicking on the AI symbol in the bottom left corner of the screen takes you back to the beginning. To view the work by category, select **By category** from the **Views** menu. Alternatively, you can select **By artist** to see the collective works of a single student!



Once the program has loaded, you can elect to view the work by category, or by student.

MACFORMAT 26

618.8Mb in disk

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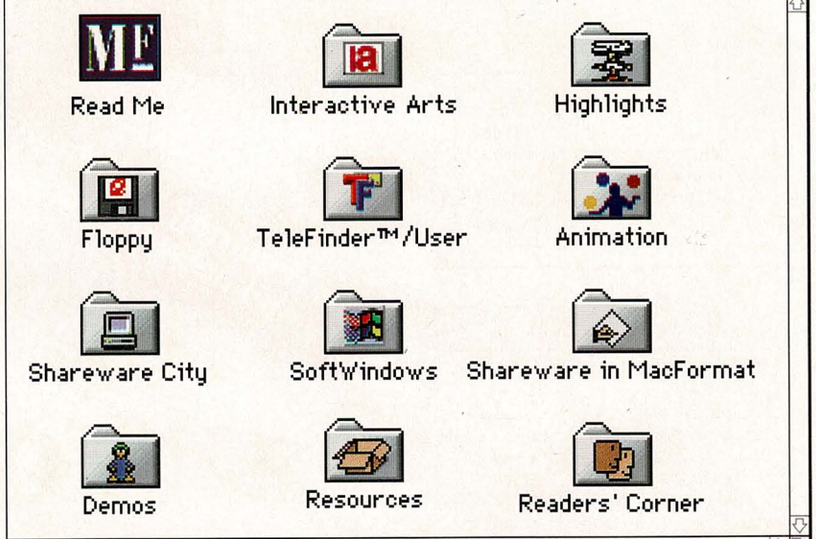
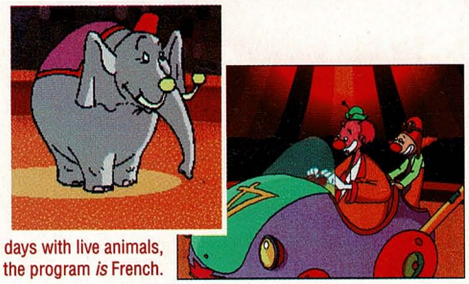


Circus

Children's Animation demo

Requires: Colour Mac, 1Mb RAM

Circus is a delightful new program designed for children. It's an interactive animation program which enables you to explore the circus, and even go behind the big top and visit some of the caravans. We have two rolling demos which take you an a tour of the program and introduce you to some of the characters. For a full review see page 94, then check out both of our demos.



Circuses are a bit politically incorrect these days with live animals, but what can you expect, the program *is* French.

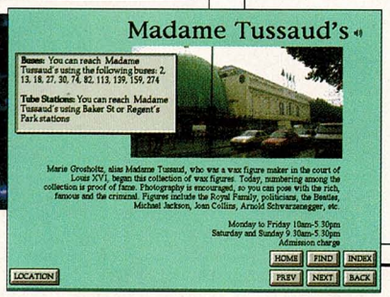
TeleFinder

Comms

Requires: Modem, any Mac

Sample the mysterious world of BBSs with *TeleFinder*, a program which claims to make comms easy to use. I'll believe it when I see it!

With all the current interest in the Internet, many people forget what bulletin boards have to offer. This month we look at the latest version of *TeleFinder*, and explain all about bulletin boards and what they are. The best way of learning about anything is to have a go yourself, so we have all the software you need to connect to the Highlander BBS, along with one month's free access to the BBS. Our full guide and review starts on page 64 and contains further instructions on using the software.


Madame Tussaud's
Buses: You can reach Madame Tussaud's using the following buses: 2, 13, 18, 27, 30, 74, 82, 113, 139, 159, 274
Tube Stations: You can reach Madame Tussaud's using Baker St or Regent's Park stations
Marie Grosholtz, alias Madame Tussaud, who was a wax figure maker in the court of Louis XVI, began this collection of wax figures. Today, numbering among the collection is proof of fame. Photography is encouraged, so you can pose with the rich, famous and the criminal. Figures include the Royal Family, politicians, the Beatles, Michael Jackson, Joan Collins, Arnold Schwarzenegger, etc.
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Visit the Readers' Art Gallery on our CD-ROM, but just remember to talk quietly and wear squeaky shoes.

Readers' Corner

Your contributions

Requires: see individual Read Me files

This month we have lots more readers' art as well as some terrific software. Make sure you visit the sites of London with Andrew Macgregor's wonderful guide to the landmarks, museums and attractions. There are photographs of each site, along with details and a description of how to get there. Also of note are some *HyperCard* stacks from Anwar Elmoutawakil, Emmanuel Vert and Martin Griesser. These include stacks to win the lottery, play hangman, and show off the colour capabilities of *HyperCard*.

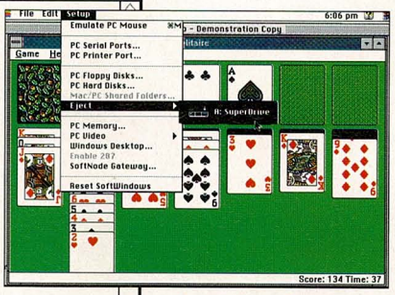
We have a wide selection of Desktop sounds from Chris Tunstead and a full tune from David Finch. Michael Tedstone has sent in a whole collection of odd icons including racing cars and guns. If our language feature inspires you to learn another languge, you can discover French courtesy of Scott Barnham's rather good program, *Lexxicon French 1.2*. If you would like your software or art included on the CD, send any contributions to Disc Editor, MACFORMAT, 30 Monmouth Street, Bath, Avon, BA1 2BW. See the Art Gallery Read Me for details of prizes for the best artwork.

SoftWindows

Microsoft Windows emulator demo

Requires: LC475, 25Mb space, 6.3Mb RAM

With Insignia's *SoftWindows* program, you can actually run Windows software designed for PCs on your Mac. To set the demo up, copy one of the *SoftWindows* applications and the *SoftWindows Hard Disk File C* to your hard disk. Drag the *Hard Disk File C* icon onto the *SoftWindows* application. The program now launches. Enter your name and company information then click the Demo button. *SoftWindows* will now start, just like a PC, in MS-DOS. To start Windows type WIN and press **[return]**. The demo is fully functional with all features, but is limited in that you can only launch it a set number of times. For more details, read the help file *How to get started*, in the same folder.



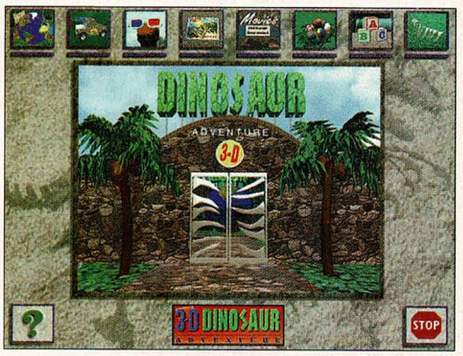
Important uses for *SoftWindows*. 1. Play a game of Solitaire 2. Remind you why you bought a Mac.

3D Dinosaur Adventure

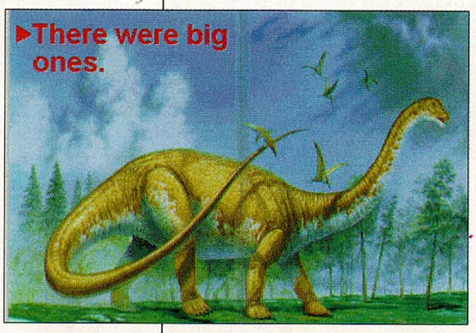
Exploration demo

Requires: System 7.0, LCII, 2.2Mb free RAM, 13-inch colour monitor

This demo contains a total of four products, but perhaps the most interesting is *3D Dinosaur Adventure*, which we reviewed last month. You can explore the park and see why this program got such a good review and received a MACFORMAT Classic award. Once the program has loaded, click on the gates to enter the park. You can now steer your way through the park using the mouse. At last we know why dinosaurs died out. They used MS-DOS.



Click on the gates to enter the park, or click on the buttons across the top. The movies is a great place to start!

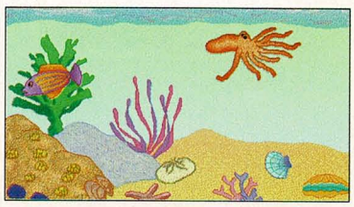


Amazing Animation

Animation demo

Requires: System 6.0.7, 2Mb free RAM

Amazing Animation is a fantastic children's educational program, and there's a full review in the Animation feature on page 50. To get you started, double click the trial program, then click on **Scenes** and select which scene you would like. Click on **Stamps**, then select one. Place your pointer on the scene and drag the mouse around with the button pressed down. Finally, click on **Play** to view your animation, all done in seconds! You can also add sounds to any frame you like, and your Mac will play the sound once that particular frame is reached in the animation.



The demo enables you to fully sample *Amazing Animation* and produce a dramatic chase sequence between a fish and an octopus.

GOT A PROBLEM?

If the cover-mounted high density disk or CD-ROM you have is defective, return it to us and we will replace it. Please make sure you have followed the installation procedures described in these pages correctly, to ensure that there is a physical problem with the disk itself. Otherwise, the replacement will be just the same!

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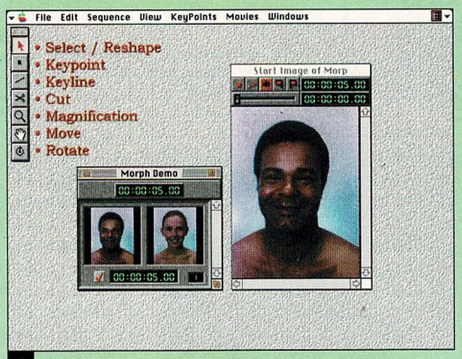
JOBSWORTH

In the Floppy folder of the CD is an extra item called *Jobsworth*. This is the stack referred to in the HyperCard tutorial of MACFORMAT 24, which we couldn't fit on the floppy of that issue.

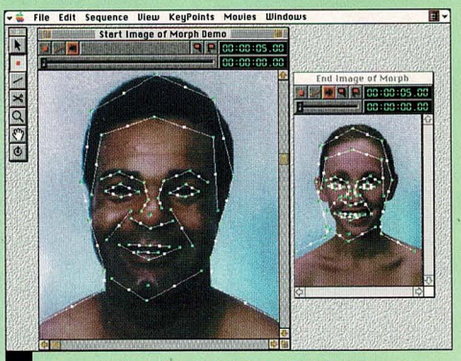
BEND ME, SHAPE ME

Do you want to know how your children will look? Simply morph a picture of yourself and your prospective partner and there you have it.

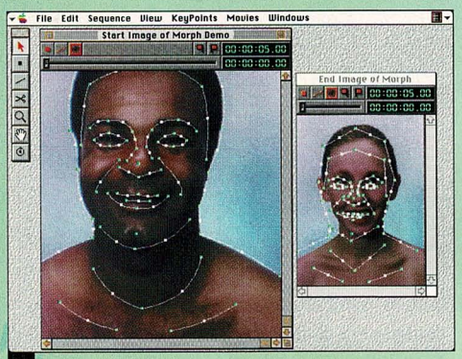
In this walkthrough of the *Morph 2.5* demo you will produce a morph from one face to another. Since the demo will not allow movie creation you will only be able to view a still image at any point in the morph, but it will give you a good idea of how it all works.



1 On opening the program, you will see an empty untitled window. You will need some images, so double click on the left hand box in the window and select *Photo 1* from the Morph Demo Samples folder, then double click on the second box and select *Photo 2*. The program automatically sets the movie duration to 5 seconds. Double click on the first picture, then the second picture, to open the edit windows.

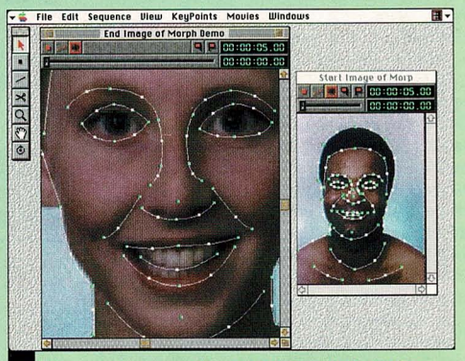


2 The next step is to place keypoints around the most important features of the man's face. Click on the dot below the pointer in the tool bar, then click on the image to place a point. To connect two points, hold down **[option]** when you click. Notice all the points you place on the first image appear on the second. You will find it easier to place the points accurately by zooming in on the image.

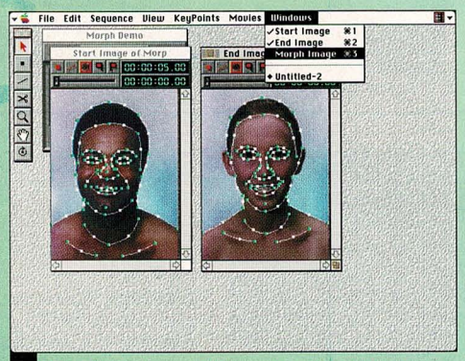


3 With the select and reshape tool adjust the lines so that they're smooth to the shapes of the face. To do this click and hold the white dot between the two green keypoints of a keyline and move to the correct position. Do this over the whole face, including any areas you can't see because of the zoom level. Then add and manipulate other key points or lines.

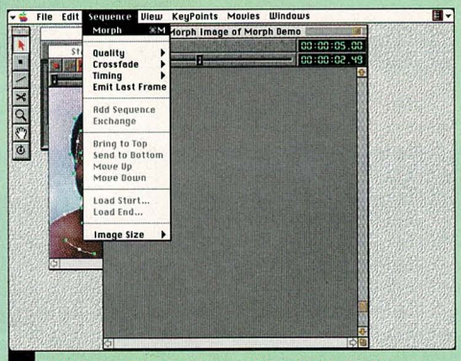
4 Now click on the window containing the woman's face. Choose **Select All** from the **Edit** menu. Go to the **Keypoints** menu, down to **Copy Key Time** and through **Start Image** to **Out**. This will copy all the adjusted keypoints from the start image to the end image. Now adjust all the points on the woman's face to the equivalent position of the man's face.



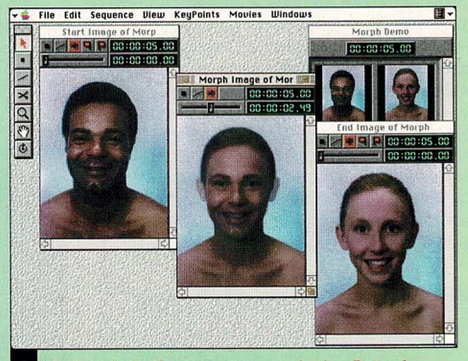
5 Once you have repositioned all the keypoints, making doubly sure you have not missed any, check that no lines have overlapped and that none of the movement from the start to the end image is too extreme or exaggerated – too much movement in a keypoint can result in the pixels being skewed during the morph process.



6 Now that the images both have their keypoints relative to each other, zoom out and check all the points, carefully comparing the images. Once you are sure all is well go to the **Windows** menu and open the **Morph Image** window. This is where you will be able to view your morphed image, since there is no export option to save a movie in this demo.



7 We're very nearly there now! With the **Morph Image** window open, move the slider bar across to about 2:49 as above. This tells the program to produce a preview at 2.49 seconds into the sequence. Choose **Morph** from the **Sequence** menu. Wait a couple of seconds and voila! Now take a step back and observe your masterpiece!



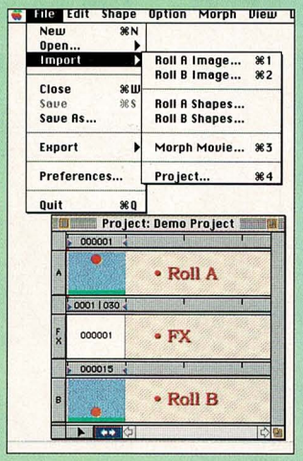
8 Go back to the **Sequence** menu and select **Better** from the **Quality** options. Choose **Morph** again. Try changing the **Crossfade** option to **Warp** or **Caricature** for some variations. In the example above the ears were left to simply fade in, go back to your start image and produce an effect where the ears would appear to grow out of the start face.

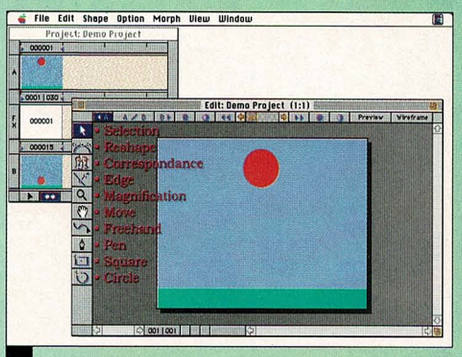
FOLLOW THE BOUNCING BALL

Do-it-yourself animation program *Elastic Reality 1.2* is more complicated than *Morph* and takes a little longer to get to grips with. But the extra effort is more than worth it. With this walkthrough we will try a different type of morph from that produced with *Morph 2.5*. It will give the effect of a bouncing ball. Remember, even the young Walt Disney had to start somewhere.

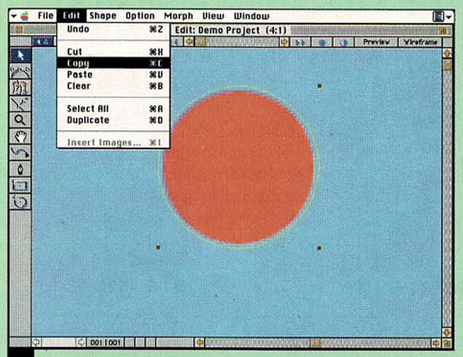
For full reviews of *Morph 2.5* and *Elastic Reality* see page 52

1 On starting the demo you should have an empty project window. If not choose **New** from the **File** menu. Import, through the **File** menu, the images *BallinAir.pict* into Roll A and *BallonGround.pict* into Roll B. Click on the numbers below the Roll A preview and type 30. This number tells the program how many frames to generate for the animation. Click on the number below the FX timeline (the white box containing 000001) and type 15. This number tells it which frame to render when you request a preview from the **Morph** menu.

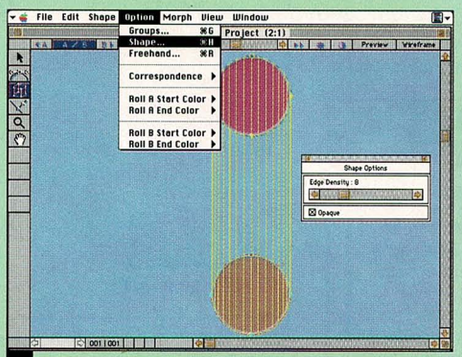




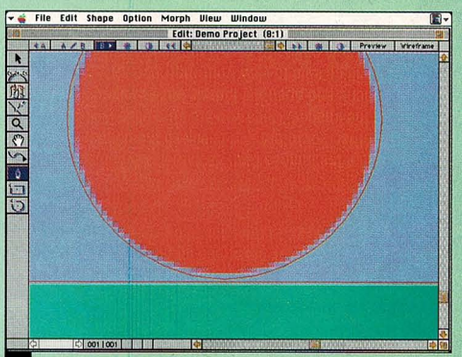
2 Double click on the white FX box to open the Edit window. In the top and bottom bars of the Edit window are the tools for moving between the images and viewing the preview and wireframe animation. To the furthest left the **A** button enables you to see the Roll A image and to draw shapes upon it. The **A/B** button shows a 50% transparent mix of the two images, enabling shapes to be joined between Rolls A and B. The tools are on the vertical bar to the left.



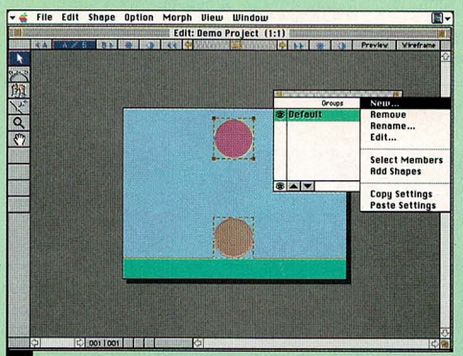
3 Using the circle tool from the side bar, carefully draw a circle around the red sphere. Once this is done, select **Copy** from the **Edit** menu. Click on the **B** button and move down to the orange sphere. Then select **Paste** from the **Edit** menu. Now move the circle down to surround the orange ball. Word of warning, make sure that the bottom edge isn't too close to the ground.



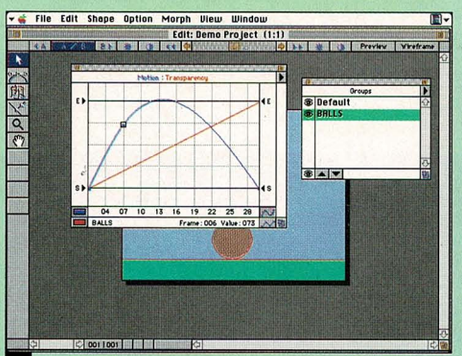
4 Click on the **A/B** button. Select the top circle first, then, holding down **[shift]**, click the second. Once both are selected go to the **Shape** menu and choose **Join**. Moving bounding boxes appear around both shapes. Select the correspondence tool. Now go to the **Option** menu and choose **Shape**. A menu will appear. Move the slider bar until the figure reads 16. Notice the lines from circle to circle become denser.



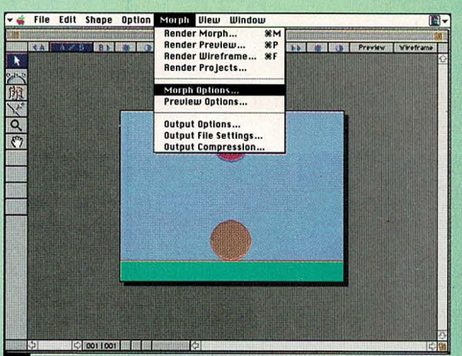
5 Click on **A**. Using the pen tool place a point to the left of the screen a fraction above the ground, move to the other side, and place a second point at the same height. A line should be drawn between the two points. Select the line then copy and paste it to the Roll B image. Make sure that there is clearance between the bottom of the circle and the new line. This line is to prevent the ground from moving.



6 Click **A/B** and select the joined balls. Go to the **Option** menu and choose **Groups**. Click and hold down on the arrow in the top right of the window that you are presented with. Choose New. Type a name for your new group, something like Ball. Now, checking the shapes are still selected, highlight 'Ball' in the Groups window, then choose **Add Shapes** from the pop-up menu.



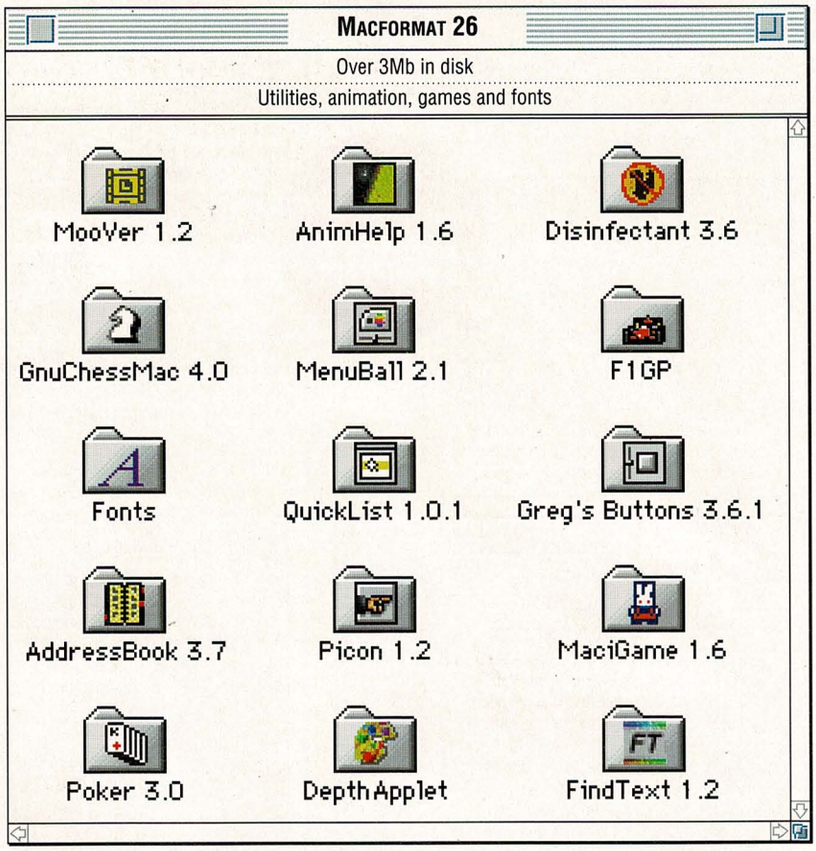
7 Double click on 'Ball' in the Groups window to open the Motion: Transparency editor. Click and hold down on the arrow in the top right, and choose **Frames**. Now move the blue dot on the E line at the top from frame 30 value 100 to frame 30 value 0. Click and hold at frame 13 to make a new point and move it to frame 6 value 75 as above. The ball will move quickly down, flatten, then move slowly up again.



8 Close all open dialogue windows. Choose **Morph Options** from the **Morph** menu, set Precision to Best and check Anti-Aliasing, click **OK**. Select **Output File Settings** from the **Morph** menu, type a name for the animation and select where to save it. Now simply choose **Render Morph**. After a short while the morph should be complete. To view it choose **Movie Clip** from the **Windows** menu.

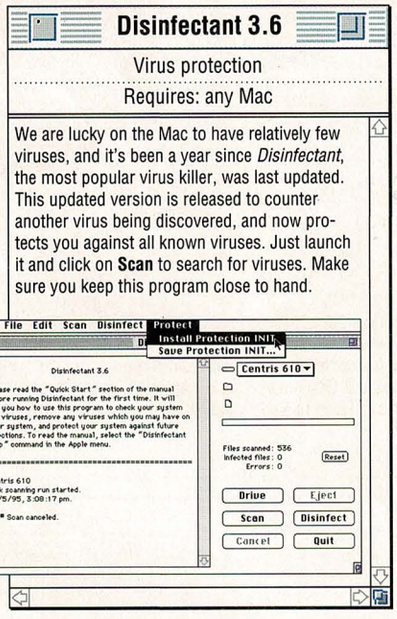
Not only is this issue alive (and kicking), so is the cover disk, and with over 3Mb of wonderful software. We spoil you rotten sometimes!

Anyone can do animation on the Mac, and to prove it, we bring you two terrific shareware programs that are dead easy to use. The rest of the disk is packed with some truly great utilities and some totally addictive games, so now let's take a look at what else is on the floppy disk this month...

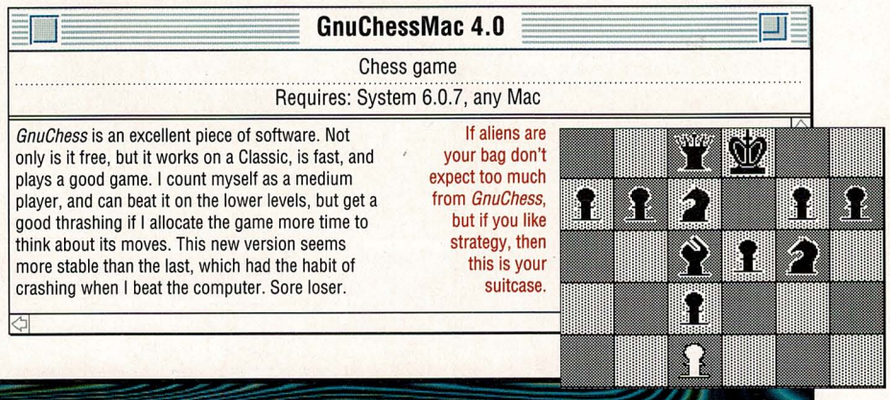


ANIMATE

For details on using *MooVer 1.2* and *AnimHelp 1.6* see the box on page 56.


Disinfectant 3.6
Virus protection
Requires: any Mac
We are lucky on the Mac to have relatively few viruses, and it's been a year since *Disinfectant*, the most popular virus killer, was last updated. This updated version is released to counter another virus being discovered, and now protects you against all known viruses. Just launch it and click on **Scan** to search for viruses. Make sure you keep this program close to hand.

Installing the *Disinfectant* INIT provides your Mac with automatic protection against viruses.


GnuChessMac 4.0
Chess game
Requires: System 6.0.7, any Mac
GnuChess is an excellent piece of software. Not only is it free, but it works on a Classic, is fast, and plays a good game. I count myself as a medium player, and can beat it on the lower levels, but get a good thrashing if I allocate the game more time to think about its moves. This new version seems more stable than the last, which had the habit of crashing when I beat the computer. Sore loser.

If aliens are your bag don't expect too much from *GnuChess*, but if you like strategy, then this is your suitcase.

START HERE

High density floppy disks normally contain a maximum of 1.4 megabytes of software, but to bring you as much as possible, we use a compression program to fit more on. This means you must decompress the software before using it – you'll need 2-3Mb of hard disk space. We also recommend that you should make a backup of the MACFORMAT cover disk, just in case anything goes wrong. Here's what to do...

1 Make sure the original cover disk is write-protected (move the tab so that you can see through the hole).
2 Insert the MACFORMAT cover disk.
3 Drag the disk's icon over your hard disk's icon.
4 The contents are copied onto your hard disk, but are still compressed and cannot be used yet.
5 Drag the cover disk icon to the Wastebasket to eject the disk.
6 Insert a blank high density disk.
7 Drag the MACFORMAT 26 folder from your hard disk onto the blank disk's icon to make your backup.

To decompress the cover disk, open the MACFORMAT 26 folder on your hard disk.

1 Double-click on the MACFORMAT 26 icon.
2 Click **Continue**.
3 A box then asks you where you want to save the software. Choose the place on your hard disk where you want everything stored and click **Save**.

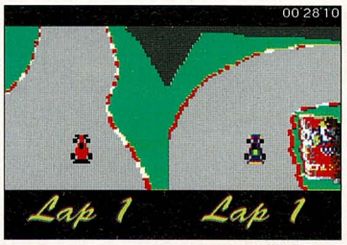
Before installing the cover disk we always recommend that you back up any important work on your hard disk. This sensible precaution will avoid problems should any of the software not be compatible with your setup. We make every effort to check our disks for compatibility and viruses, but the information here is intended as a guide only, and MACFORMAT cannot be held responsible for any damage to data, any inability to use this software or any resulting losses. So please, take the precaution of backing up first.

F1GP

Racing Game

Requires: see below

This is a Formula One racing game for two players. The screen splits in two, with the left car being controlled with **[shift]**, **[ctrl]**, **[option]** and **[command]**, and the right car with 4, 5, 6 and 8 on the numeric keypad. By only using 16 colours and blocky graphics, this game manages to run satisfyingly fast on any colour Macs. To run it you'll require a 14-inch 16-colour monitor, System 7.1 and 2.2Mb of free RAM.



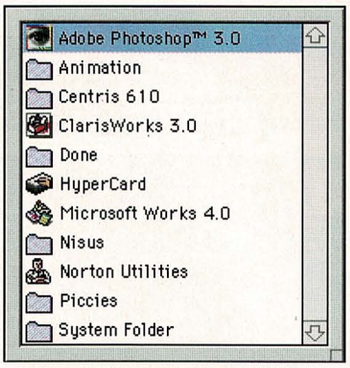
You and a friend can pretend to be Damon Hill and Michael Schumacher. Sadly the realism doesn't extend to forcing people off the track.

QuickList

Utility

Requires: System 7

QuickList is a handy utility which gives you quick access to all your most commonly used applications and files. You can add any item to its window, and then launch it by double clicking. If you have System 7.5, you can add items to the list by simply dragging and dropping them. An alias of the program can automatically be placed in your Startup Items Folder, so that the palette appears whenever you switch your Mac on.

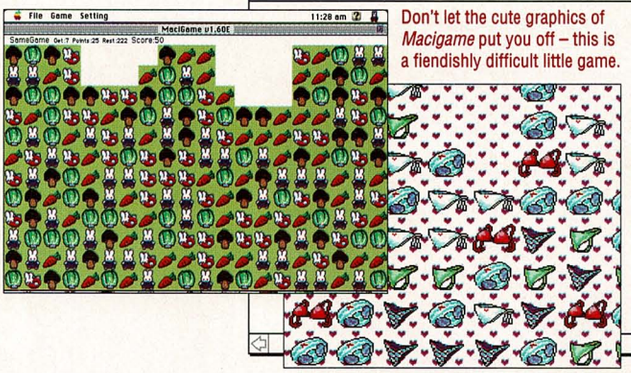


If, like me, you spend half your day searching through folders for files, then try *QuickList*.

MaciGame 1.6

Game

Requires: System 7.1, 1Mb free RAM



Don't let the cute graphics of *Macigame* put you off – this is a fiendishly difficult little game.

You're shown a grid of different coloured bunnies. When two or more bunnies of the same colour sit next to each other, they can be destroyed with a double-click. This forces the bunnies above to drop down into the space created. Remove a whole column and the ones to the right shift over to close the gap. The aim is to get rid of as many bunnies as possible.

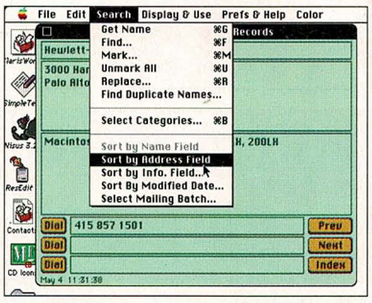
That's not all, for the game lets you change the graphics to suit your mood. No more bunnies, how about pussy cats wearing women's panties? Or monkeys – when the monkeys can be eliminated they join arms and look happy, but when they are stuck alone they just look unhappy.

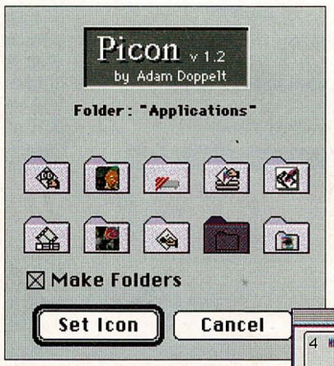
Also Featuring

Various

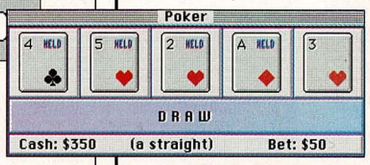
Requires: See individual Read Me files

Keep track of all your friends and family with *AddressBook*, a specially tailored database which is small and very fast. You can keep notes, such as birthdays, and find details later with a few clicks. *MenuBall* is pure fun, and puts a little bouncing ball in your menu bar. Somewhat more practical is *Picon*. Drag a folder onto *Picon* and you can automatically create a custom icon for that folder, based upon applications contained within. *DepthApplet* is simple, but useful. Clicking on its floating palette enables you to switch the number of colours your monitor displays, without the hassle of using the Monitor Control Panel. Last but not least is *Poker*, a computer version of the classic card game. Unfortunately, being a one player game, it's no good for use in strip poker, unless you're very sad.





If you want to keep *AddressBook* close to hand, why not put it in the Apple Menu Items folder in your System Folder.



YOUR TURN

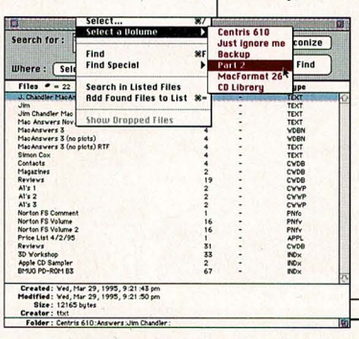
We always welcome contributions from you, the reader. If you have written some software, send it in and we'll put it on the floppy or CD. Address to Disk Editor, MACFORMAT, 30 Monmouth Street, Bath, Avon, BA1 2BW.

FindText

Utility

Requires: Any Mac

If you have lost a file, you can go to the **File** menu and select **Find** and then keep your fingers crossed. This is all very well and good if you know the name of the file or when it was created. But what if you know you wrote a letter about say, Giraffes, approximately six months ago, but you can't remember exactly what the file was called? The only way to find it is to open up all your files and painstakingly search for the word Giraffe. *FindText* does this for you automatically. Simply type in the word, tell it what folder or disk to search, and it will find all files containing that word – clever, that!

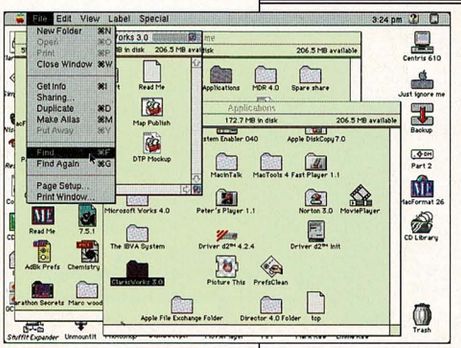


This is one of those programs that you'll only need occasionally, but will then save you hours of work!

Greg's Buttons 3.6.1

Utility

Requires: System 7, colour monitor



Brighten up your Mac with *Greg's Buttons*, one of the most famous bits of shareware ever.

System 7 is lovely, it's what makes a Mac different from other computers. The only problem is that, well, it's a little bland. Put that right with *Greg's Buttons*. This Control Panel enables you to colour most parts of the Desktop such as windows and menu bars. You can also have 3D embossed dialogue boxes and custom check boxes. Simply drag *Greg's Buttons* onto your closed System Folder and restart.

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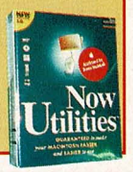

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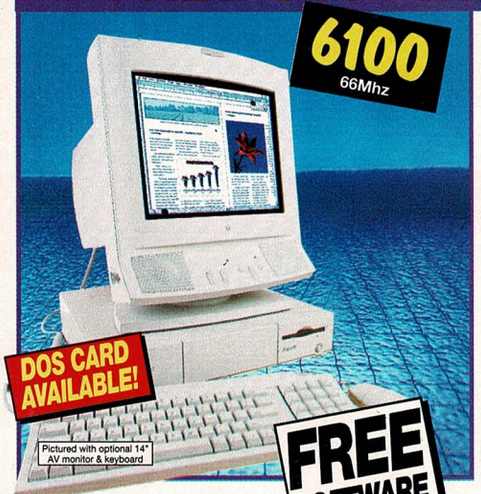

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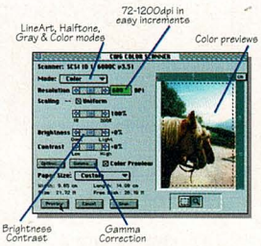

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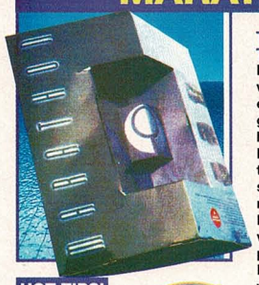

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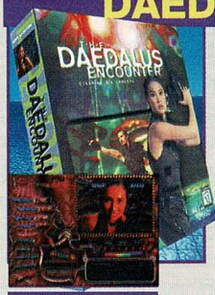

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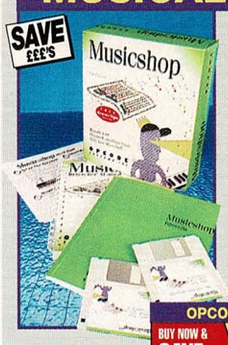

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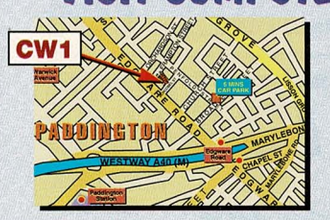

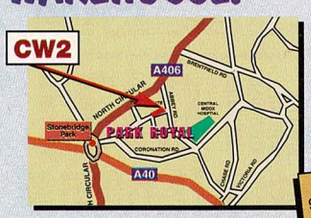

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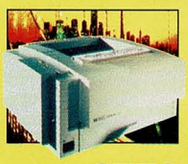

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Technology		Inkjet	Col. Inkjet	Laser	Laser	Colour Laser	Inkjet	Laser
Speed:	Mono	3ppm	4ppm	12ppm	10ppm	10ppm	6ppm	10ppm
	Colour	1.5ppm	1ppm			2ppm		12ppm
Resolution:	Mono (dpi)	600x300	600x600	600dpi +REt	60+REt	600+REt	600+REt	
	Colour (dpi)	300x300	600x300			300		
Memory:	Standard	512KB	512KB	6MB+MEt	10MB	6MB+MEt	6MB+MEt	6MB+MEt
	Upgradeable			56MB+MEt		72MB+MEt	66MB+MEt	66MB+MEt
Interfaces		Centronics	Centronics	Bitronics RS232 Serial, MIO E'net JetDirect	Bi-tronics 2xMIO Slots E'net JetDirect	Bi-tronics MIO Slot E'net JetDirect	Bi-tronics Small Para. L/Talk RS422 & InfaRed	Bi-tronics MIO Slot E'net JetDirect
Typefaces:	bitmapped	4 (port+land)	4 (port+land)	1	1	1	1, 45 Intellifont/TT	1
	scaleable	14 Windows	14 Windows	45 Intellifont/TT 35 Adobe Type 1	45 Intellifont/TT 35 Adobe Type 1	45 Intellifont/TT 35 Adobe Type 1	77 TT on disk 35 Adobe Type 1	45 Intellifont/TT 35 Adobe Type 1
Warranty		3 Years	3 Years	1 Year	1 Year	1 Year On-Site	1 Year	1 Year
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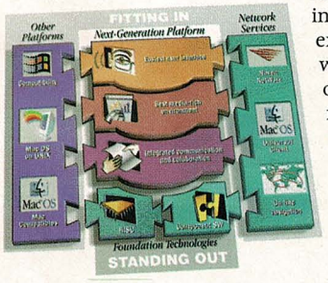
Major revisions of the Mac operating system are revealed and the battle over the future of CD-ROM intensifies. Richard Hill reports...

New operating system unveiled

The Mac operating system (OS) is set to undergo big changes next year, when the update code-named Copland is released. Details revealed by Apple show that you'll be able to customise the look of your screen Desktop more than ever, while some parts of the System will be twice as fast.

Crucially, none of the changes should mean you'll need more than 8Mb to use the OS and your favourite programs. But at first, Copland will only be available for PowerMacs – although a version for slower 680x0 processor Macs hasn't been ruled out. A version for the new specification machines being worked on by Apple, IBM and Motorola (Common Hardware Reference Platform – see MACFORMAT 25) will follow.

You'll be able to change the appearance of windows and menus and add animations and sounds. This will mean each Mac user gets the interface that suits their needs. If there is more than one person using a particular Mac – in a family or office, for example – each person will be able to switch over to his own preferred design without restarting the Mac. Apple will be providing some designs with the new OS. Possible designs include ones ideal for children, beginners or experts – or even those who want to preserve the Mac's traditional look.



The new Mac OS will meet Apple's targets of ease-of-use and supporting industry standards and new technology. (Illustration © Apple Computer 1995)

New behind-the-scenes design features are being added as well. Slider and floating menu designs will be added to the toolbox of features programmers can use when making a program. This means there should be fewer annoying minor differences of common facilities between programs, making them easier to learn and use. Existing toolbox designs like the Open and Save dialogue boxes will be revamped to make them clearer.

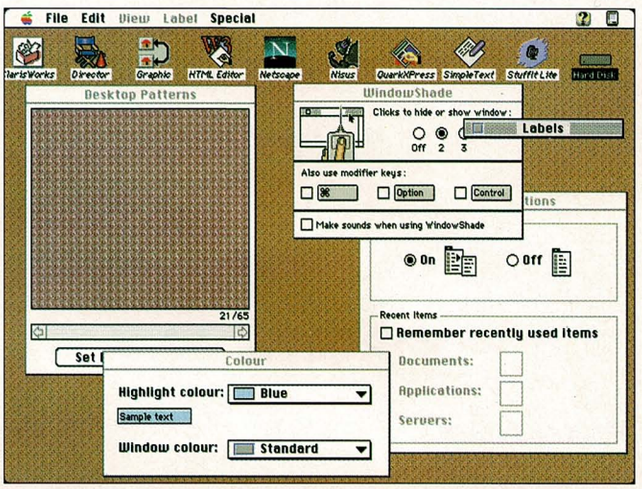
There will also be improvements in the way the OS is programmed. Your Mac will be able to move data from the hard drive into memory, or from memory onto the screen, up to twice as quickly as it can with System 7. In addition, most of the OS will be in code specially written for the PowerMac. Currently, PowerMacs have to translate code written for the older Macs, which is time-consuming. The extra speed will come without you having to change your Mac set-up at all.

The OS will be based on what is called a micro-kernel system. There's a small central core of program code that is essential – other parts can be added and removed as they're needed. This means, for example, that when a new device connection system like NuBus or the forthcoming PCI is invented, you'll be able to add a small driver program to use it without having to update your entire OS. All the other parts will adjust to the newcomer automatically.

The micro-kernel set-up also means that your Mac will be even less likely to crash without warning – and you'll be able to carry on working while the Mac does basic tasks that normally hold you up, like copying files, in the background.

The first version of the radical rewrite of the Mac OS was shown at the recent Worldwide Developers' Conference in California. It's expected to be completed by the summer of 1996.

Launch Pad is one of the programs that tries to make the Mac more appealing to kids – now Apple are picking up on the idea with customised Desktops.



You can already modify hugely the look of your Desktop with System 7.5, but with the next Mac OS, Apple will build on these concepts like never before.

EXTENSIONS

Because of the changes in the Mac OS, Extensions like *RAM Doubler* and *CDIconKiller* written for System 7 won't run under the new OS. But after they're rewritten, they should be less likely to clash with programs and other Extensions. QuickTime and QuickDraw GX will become part of the main OS.

Super CD-ROM battle

Multimedia and other Mac programs are set to be transformed in 1996, when Macs will be able to use high-density CD-ROMs that can store up to 15 times more information than today's discs. With the faster drives that are coming out, programs will be more detailed and able to show better graphics. They'll also have the added facility of being able to play video and music.

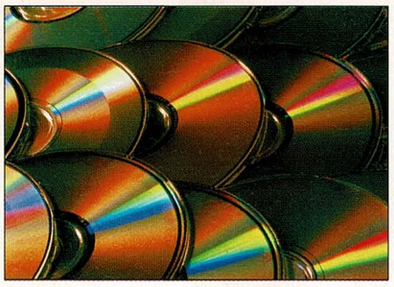
But there's a hurdle to overcome before this can happen. There are two competing standards of new CD-ROM – and neither of them work on the other's players. Each group has the support of powerful entertainment companies – so we could end up with different films appearing in different formats.

The Super Density (SD) format is known as the Digital Video Disc (DVD) as well. It's the work of a group that includes Matsushita, Toshiba and Hitachi. Products include a single-sided 5Gb disc and a double-sided 10Gb disc. (1Gb – gigabyte – is 1,000Mb.) The SD-DVD format is supported by film and TV companies including Time Warner and Turner Entertainment, who see the format's potential for showing high-quality video.

The rival MultiMedia Compact Disc (MMCD) has been developed by a group of firms led by Sony and Philips – the creators of the original CD format. Their disc is single-sided and can store 7.4Gb. It has the support of hi-fi firms Aiwa and Marantz and CD-ROM drive makers Teac and Ricoh, among others. And Sony and Philips are both part of organisations that own film and record companies such as Columbia, TriStar and Island. MMCD can play your current CD-ROMs – and even if you chose not to buy an MMCD player, you could still play some parts of the new discs on your current drive.

To avoid the confusing situation of two clashing formats coming out, Apple have joined with major computer firms IBM, Compaq, Hewlett Packard and Microsoft to call for a resolution to the conflict. They want the two sides to agree on a single format that the entire industry can confidently put its weight behind. And they're offering to provide technical advice to see how the format can be made.

When it arrives, the new standard should be able to play your existing CD-ROMs on its new players, as well as future designs – for example, Philips is already working on a CD you can save information on. Watch for more news!



The CD-ROM medium is set to take another great leap forward – but in whose direction?

Comet sell Macs

The electrical chain Comet are the latest to add Macs to their stores. They now have Performas and StyleWriters in selected stores, as well as Mac software including business, multimedia and game software.

Apple on the up

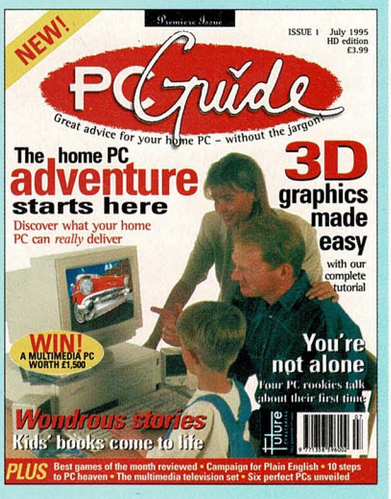
Apple are selling more Macs than ever, according to the firm's latest results. They sold over a million machines for the third three-month period in a row. The firm's profits between January and March were $73 million – compared with $17 million a year ago.

Easy PC

If you use a PC-compatible computer as well as your Mac, a new magazine from Future Publishing aims to help you make sense of your PC. It's written in the same friendly and practical manner that you've come to expect from MACFORMAT.

PC Guide is on sale now at all good newsagents, costing £4.99 for the CD-ROM edition or £3.99 with high density disk. The first issue includes a beginner's guide to improving your PC, tips on creating 3D images and speculates on where the PC will be at the turn of the century. *PC Guide* also looks in-depth at the landscape generator *Vistapro* and the smash hit game *Doom*. And there's a clinic to help solve the most common problems with loading software... PCs, eh?

Someone sure needs to make sense of PCs, and *PC Guide's* the magazine that aims to do it.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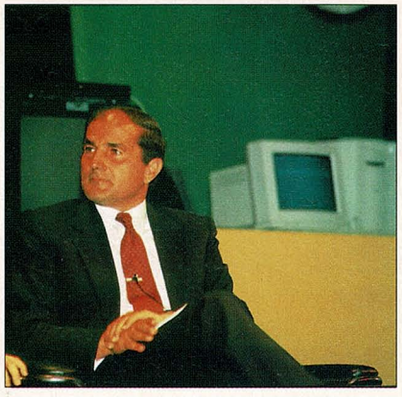
PLUS Best games of the month reviewed • Campaign for Plain English • 10 steps to PC heaven • The multimedia television set • Six perfect PCs unveiled

Apple act to end Macintosh shortages

Apple are trying to prevent any more of the problems that have made it difficult to buy certain types of Mac in the past. There's a backlog of orders for the top-of-the-range PowerMac 8100s at the moment, for example.

Joseph Graziano is Apple's Chief Financial Officer. He says the firm will be adjusting the way it predicts future sales and making sure it has good stocks of essential parts like processor chips. But Motorola, who make the PowerPC chips used in PowerMacs and other computers, admit that they're finding it difficult to keep up with the demand for the new 604 chips. And Radius, who are producing a PowerMac-compatible machine for graphics and video users, say they've had to delay the machine's release due to a lack of parts.

Marco Landi, Vice-President for Apple Europe, says that Apple's manufacturing plant in Ireland will be expanding to meet the demand – while in Korea, a deal for an electronics firm to make 800,000 Mac cases has been signed.



Apple's Europe's Marco Landi says more Macs will be made soon, meaning you shouldn't have to wait for certain models.

MACFORMAT size

From next issue, MACFORMAT will be published at a slightly smaller, more standard size. Like every other magazine and newspaper, we've been confronted with a huge increase in paper prices. Our trimming of size will mean we can avoid cutting the number of pages or raising our cover price steeply – moves other magazines are being forced into.

MacDiary

MacFormat's guide to what's happening in the world of Macintosh.

■ Multimedia 95
Where: The Business Design Centre, Islington, London.
When: Tuesday 20 June to Thursday 22 June.
What: An exhibition for program designers, publishers, and anyone using multimedia in their business. There'll be program workshops for beginners and experts, and an interactive showcase of the winners of the 11th annual British Multimedia Awards.
Price: Free if you register by Tuesday 6 June; or £20 after that date.
Contact: The Information Hotline on 0171 288 6460.

■ Newport School of Art and Design Interactive Arts Degree Show
Where: Gwent College of Higher Education, Caerlon, Newport.
When: Thursday 22 June to Saturday 24 June.
What: An exhibition of work by students of Newport School's BA (Hons) course in Interactive Arts – the future Mac multimedia designers. Check the Interactive Arts folder on this issue's CD-ROM for samples of their work.
Price: Free.
Contact: Newport School of Art and Design on 01633 432180.

■ Interactive Newspapers Europe
Where: The Royal Lancaster Hotel, Bayswater, London.
When: Thursday 6 July and Friday 7 June.
What: A conference for publishers and advertisers on the future of newspapers as the Internet and CD-ROM spread. Sessions include Designing a Compelling World Wide Web Site and Making Money from Interactive Newspapers. There'll be an exhibition as well.
Price: £932.38. Book by Saturday 10 June to get a 20% discount.
Contact: The Hammond Organisation on 0181 943 9700.

■ Macworld Expo
Where: Boston, United States.
When: Tuesday 8 August to Friday 11 August.
What: The biggest Mac show of the summer. Companies including Apple, Microsoft and Adobe will show new machines and software. There'll be special sections for programmers, scientists and user groups and conferences on design, the Internet, multimedia, education and business.
Prices: $25 for exhibition, $120 for exhibits and conference if you register by Friday 30 June ($40 and $150 after that date). International surcharge $45.
Contact: Mitch Hall Associates on 00 1 617 361 2001.

Doom II out in July

The wait is almost over – the worldwide hit game *Doom II: Hell on Earth* will be out for the Mac next month. The release follows the recent flood of titles announced at the European Computer Trade Show. Along with titles like *Dark Forces* and *Primal Rage*, it's evidence that the Mac games scene is taking off at last.

Mark Floisand, Marketing Manager for Apple's Performa range, says that Apple are thinking seriously about a games bundle for the Christmas market, because of the increased interest in the Mac as a quality games machine.

Doom II is a furiously-paced 3D blaster – its predecessor is of course *Doom*, which will be available as shareware later this year. The success of these games on other computer platforms has led to many imitations being released – and one of the best, Bungie Software's *Marathon*, is only available on the Mac.

The high resolution graphics of *Doom II: Hell on Earth* will be super-fast in the special PowerMac version. Coming to a Macintosh near you soon.

Is this the ultimate 3D shoot-'em-up? You'll get the chance to decide when *Doom II* comes out on the Mac soon – with the original *Doom* to follow as bargain shareware.

The Mac version of *Doom II* will run more quickly on a PowerMac and will also feature high resolution graphics. You'll need a fast Mac though – a Quadra or one of the newer Performas, with 8Mb of RAM. The price has yet to be set, but *Doom II* will be available on floppy disks and CD-ROM.

The game has gained some notoriety because of its violent content – with the blood flying freely. Because of this, publishers GT Interactive will be labelling the box using an industry-standard voluntary age code. They'll be suggesting that *Doom II* is not suitable for players under 17.

Component software coming soon

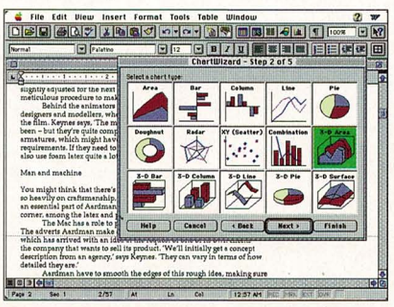
The software needed to create to create independent components using Apple's OpenDoc system is now available to programmers. With OpenDoc, you'll be able to use smaller programs that co-operate with each other – like using the plug-ins you can get for programs like *Photoshop* without having the main program.

You can work around the needs of the document you're creating, bringing in different components depending on what you want to do next. It means you won't have to rely on huge programs, paying for features you won't use, if you don't want to. The first OpenDoc programs, and the extra Mac OS software you'll need to run them, will be out later this year.

Apple estimate the development kit is now in the hands of 50,000 programmers around the world.

OLE (Object Linking and Embedding), a similar system, will also have tools designed to create small components, according to makers Microsoft. The kit that enables programmers to do this will be available later this year. The *Microsoft Office* suite already uses OLE to exchange information between its different programs *(Word, Excel* and *PowerPoint)*, but Microsoft say the lack of smaller sub-programs has led users to believe OLE is less capable than it actually is.

OLE controls, as the new components will be known, will run alongside the larger programs that will continue to use the system.



Microsoft's OLE system now only swaps data between their own programs – but they promise more to come.

Power Computing

Power Computing, the first firm to release Mac OS-compatible computers, have a new project aimed at program designers. CodeStation will come with the popular *CodeWarrior* software from Metrowerks, which enables you to write programs for the Mac and Windows 95 systems.

This is Video Mac

The major Japanese telecommunications firm NTT are to launch a Mac OS compatible computer that's a videophone. Equipped with a camera, the FM-A71 uses QuickTime video and NTT's high-speed ISDN cable system. Users will be able to link up with anyone using a similar video set-up and see each other. They'll also be able to exchange graphics and other information.

Apple announces something incredible.

We're just not sure what it is.

Some people will call it an amazing new multimedia PC that gives ordinary people extraordinary powers of creation.

Others will call it whatever they want. Because that's exactly what it is, whatever you want it to be.

It's a teacher

Any PC can bring information and help to your desktop. But none is so adept at bringing it to life as a Macintosh.™

And with AppleGuide,™ a whole new kind of help system, there's no need to go through complex manuals ever again. AppleGuide takes you through practically every function of your Macintosh, step-by-step, on-screen.

Maybe that's why so many educational programs and CD-ROM titles have been created for the Macintosh. And that's why Apple is now the world's leading supplier of multimedia PCs.

It's a TV

Want to watch your favourite programme on a sharp, clear 15″ screen? Just turn on your Apple Macintosh Performa™ 5200 with the optional TV/Video card,† and tune into the BBC, CNN or MTV in Nicam stereo. Comedy, sports, whatever. You also get TeleText and it's ready for cable.

And we give you a remote control. So all you have to do is point and click.

It's a computer

Like all Macintosh computers, the Performa 5200 runs more than 7,000 software applications.

It runs business, education, multimedia and home software. From financial programs to programs just for fun. From everyday word processing, to home accounts and school essays, to publishing parish mailshots, and more.

And it's powered by the PowerPC™ RISC chip, so it runs everything fast.

It's a video editor

Introducing VideoShop.® It's a streamlined version of the editing software used by professional video editors. It comes with the TV/Video card option.† It helps you create great looking videos, complete with special effects like dissolves, fades and wipes.

As well as giving you the ability to plug-in your camcorder, it also lets you mix audio too – whether it's audio off a video or a CD. Or off your own electric guitar.

It's the Internet

Plug a fax/data modem into the back of your Performa 5200 and you can plug into the world of cyberspace.

You can cruise the Internet. Exchange all kinds of useful information (and gossip) with people on the Net all over the world. You can send and receive faxes.

You can log-on to eWorld.™ Go shopping on-line. And more.*

It's a stereo

The built-in quadruple-speed CD-ROM drive isn't just for hot, new multimedia software. It's also for playing your audio CDs. So you can listen to Liszt in flawless, 16-bit stereo. Or give the built-in speakers a pounding (don't worry, they can take it) with some Heavy Metal.

It's a Macintosh

Buy a Macintosh Performa 5200 and you can literally unpack the box, plug it in, turn it on, and start using it.

Because all sorts of useful software is pre-installed, such as the award winning ClarisWorks.™ Including word processing, spreadsheet, drawing and database packages. And connecting to printers, scanners, modems and more is as simple as plugging them in.

Why do we go to such lengths to make Macintosh so easy?

Because it's not what the computer can do. It's what you can do.

It's the Macintosh Performa 5200.

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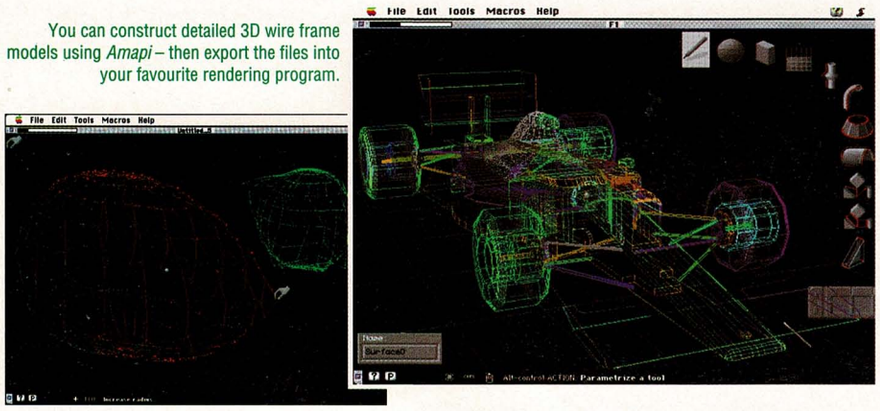
*If you are reading this tiny type, you must want to know more. Why not take a look at a Macintosh 5200? For more information and the location of your nearest Apple Dealer, call free on 0800 127753. ©1995 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, AppleGuide, eWorld, Macintosh, Performa are trademarks of Apple Computer, Inc. ClarisWorks is a trademark of Claris Corporation. PowerPC is a trademark of International Business Machines and used under licence therefrom: VideoShop is a registered trademark of Avid Desktop Software, Inc. *Additional software and a fax/data modem is required. †The Apple TV/Video Kit is available pre-installed or as a separate product.*

WHAT'S NEW

MACFORMAT gives you a first look at Apple's new economy printer, a great 3D model-making program and the latest in mouse replacements – the pad you hardly need to touch. Compiled by Richard Hill.

Amapi 1.0



You can construct detailed 3D wire frame models using *Amapi* – then export the files into your favourite rendering program.

Written by French firm Yonowat, *Amapi* is a 3D program that enables you to create wire frame models quickly. You can set up simple shapes easily, and versatile editing features help you create natural-looking forms with minimal fuss.

With floating icons down the side of the screen, the interface is not typical for the Mac, but you can switch menus with a flick of your mouse. Functions include the ability to grab hold of a point of your shape and just pull it to distort it in any direction you like.

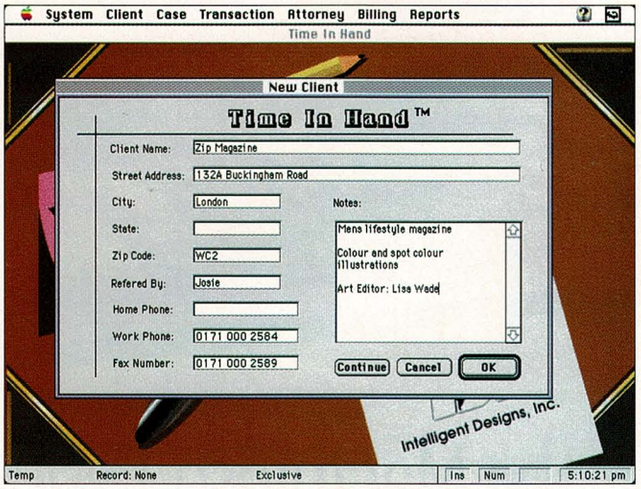
While you're supposed to use *Amapi* to provide wire frames to complete in a full rendering program like *KPT Bryce*, the program does offer a fast shading facility to give you a quick preview. Look out for a MACFORMAT review of *Amapi* soon.

- **Price: £233.83 until Friday 30 June – then £292.58. Out: now.**
- **Requires: any Mac with a maths co-processor (such as Quadras) with System 7, 8Mb of RAM, a 256-colour screen and 10Mb of hard disk space.**
- **For more details contact CGS Computerbild on 0181 679 7307.**

Time in Hand

If you are trying to run a business, it can be difficult to keep track of how well or badly the money's coming in – especially if you've only just started. The idea behind *Time In Hand* is to act as your personal administrator, keeping tabs of the contacts you make and your dealings with them. You can use the program to monitor what work you are doing for each client and keep track of your expenses. You can use *Time In Hand* whether you're part of a company or self-employed.

- **Price: £199.95. Out: now.**
- **Requires: Mac II or better with System 7 and 4Mb of RAM.**
- **For more details contact Ramiga International on 01690 770304.**



Keep up with who's doing what in your firm and make sure you bill your clients properly with *Time In Hand* – one of a new range of planning programs coming to the Mac.

NEW FOR THE MAC

xRes upgrade

The powerful image editing program *xRes* has received an upgrade that gives it even more features. Version 1.1, which is £938.83 or free to owners of version 1.0, renders your completed image up to 60% more quickly than its predecessor. The program files also use up less space on your hard drive.

Many other individual features are faster, including the rotation, resizing and masking of images. New faciliites include the ability to use *Photoshop* plug-ins like *Kai's Power Tools* and text tools that enable you to use fonts in your images. And with the new Acquire function, you can use a scanner to bring scans straight into *xRes*. For more information contact CGS Computerbild on 0181 679 7307.

Now touches base with Adobe

Now Software, well-known for their organiser programs like *Up-To-Date*, have bought the programs *TouchBase* and *DateBook* from Adobe. The pair of programs forms a low-cost option for managing your personal information, including appointments and contacts. Later versions of the programs will be able to use the same data files as Now's professional-level *Up-To-Date* and *Contact* programs. *TouchBase* and *DateBook* are available as a £54.57 pack. For more information contact Now Software on 01525 237100.

Design Toolbox 2

You can try out the latest graphics and 3D programs for yourself with Gomark's CD-ROM *Design Toolbox 2*. The disc costs £15 (including postage) and contains usable demos of over two dozen programs, including *StrataStudio Pro*, *LogoMotion* and *Specular Collage*. And there's an impressive slideshow of the sort of results you can achieve with the software. For more details contact Gomark on 0171 731 7930.

See which graphics program is best for your needs with Gomark's one-stop option – the *Design Toolbox 2*.

Assistant Director

Macromedia Director is one of the most popular systems for creating multimedia for CD-ROM, and a new CD-ROM can offer help for those using the program. The £280.83 *MediaBook CD For Director* gives advice on using Macromedia's programming language, Lingo – whether you're new to the concepts or have been using them for years. There's also a library of routines called XObjects, which you can use in any of the programs you make with *Director* – these offer easy control over problem areas like menu control and QuickTime playback control. For more details contact Computers Unlimited on 0181 200 8282.

StyleWriter 1200

The StyleWriter 1200 is the latest in Apple's popular line of inkjet printers. Succeeding the StyleWriter II, it has several new features. You can now print up to four documents at reduced size on a single A4 sheet of paper, enabling you to see roughly how your work looks before wasting paper on a full print-out.

You can also add a watermark (a faint image behind your type) to your pages, using any standard PICT image. And you can create a special printer icon on your Mac Desktop. Drag a document icon onto the printer icon, and your program automatically loads and displays the Print dialogue box – ready to print in a few moments.

The 1200 can give print-outs of 720 by 360 dots per inch (dpi) for type and line art images, or 360 dpi for images with grey tones. The printer's software supports Apple's new QuickDraw GX font handling system – and if you own a PowerMac, the driver's written in fast native code. The StyleWriter 1200 even helpfully turns itself off when you're not using it!

- **Price: £233.83. Out: now.**
- **Requires: Mac II or better with System 7.1 and 4Mb of RAM.**
- **For more details contact Apple on 0800 127753.**

INK VS LASER

Inkjet printers are also known as bubblejet printers – they work by squirting ink onto the sheet of paper. While they're not as good as laser printers, inkjets are fine for occasional graphics printing.

The new StyleWriter printer has better printing quality and can put watermarks behind your text automatically.

GlidePoint

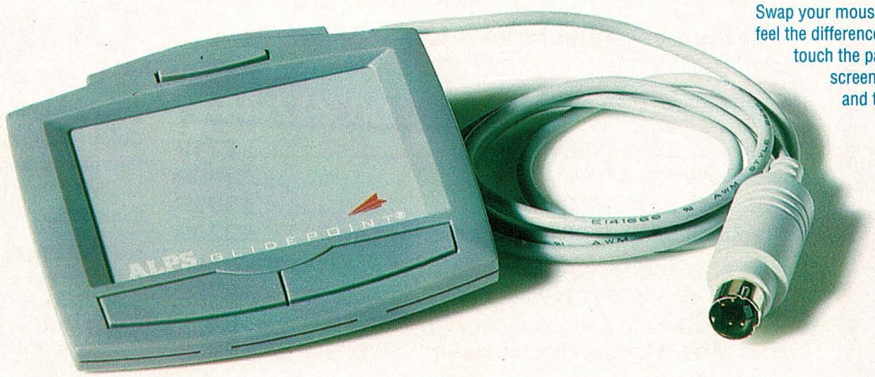
The trackpad is an alternative to the familiar mouse for moving your screen cursor. It was first found on Apple's top-of-the-range portable Mac, the PowerBook 540c – but now you can use it on any Mac with GlidePoint.

The device is touch-sensitive, which means you only need to skim your finger across the panel's surface to move your cursor. You can select an icon or menu by tapping lightly on the panel, or by using one of three buttons. Each button is programmable, so you can set one to register a double-click, for example.

You can plug GlidePoint into your mouse port – its lead is two feet long, and there's an extension lead of four feet so you can sit back. The makers are ALPS, who claim GlidePoint needs hardly any maintenance or cleaning because there are so few moving parts.

Unlike similar systems, you need to install software to be able to use GlidePoint – but it's only a tiny driver program, so it won't tax your Mac at all.

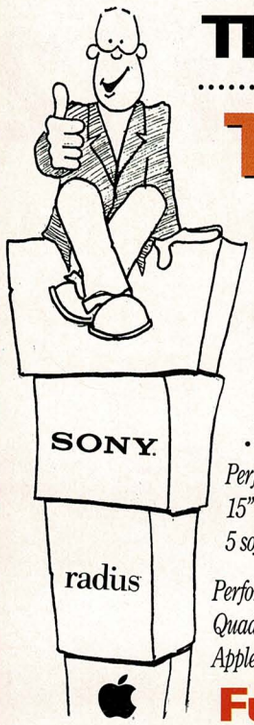
- **Price: £76.38. Out: now.**
- **Requires: Any Mac with System 7 and 4Mb of RAM.**
- **For more details contact Rotec on 01604 763611.**



Swap your mouse for GlidePoint and feel the difference. You'll hardly need to touch the pad to move your on-screen cursor – saving wear and tear on the pad.

NATURAL BORN

The latest PowerPC 603 Chip Macs are



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Education Hotline 0171 775 4291/2

MACROSCOPE

Hundreds of publishers and developers met in Cannes recently for the first New Media Forum – a multimedia roadshow hosted by Apple. Richard Hill reports from Cannes in a MacroScope special.

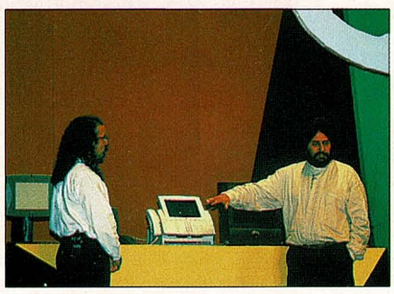
Come together right now

Apple used the New Media Forum to show the potential of multimedia to the world – and suggest how it might change the way we communicate with each other.

Cannes is best-known for a few days of madness each year when the Film Festival comes to town. Its oil pastel-coloured streets swarm with agents, starlets and papparazzi, and it becomes an arena where egos clash and deals are thrashed out. So where better to assess the progress of a rising star in the entertainment biz – the Apple Mac?

The Palais des Festivals in Cannes was the venue of the first of four major conferences to be held by Apple.

750 people from all parts of the computer industry – publishers, programmers, marketing executives and so on – retreated from the sultry weather of Cannes into the Palais des Festivals for the New Media Forum – two days of discussion on how the Mac is changing the way we work and play. While Apple took the chance to show its latest system tools – read about QuickTime VR and QuickDraw 3D in our 'Tools for new media' story on page 30 – the focus was really on people.



Prototype models showed how new media systems could look less like the computers we know today.

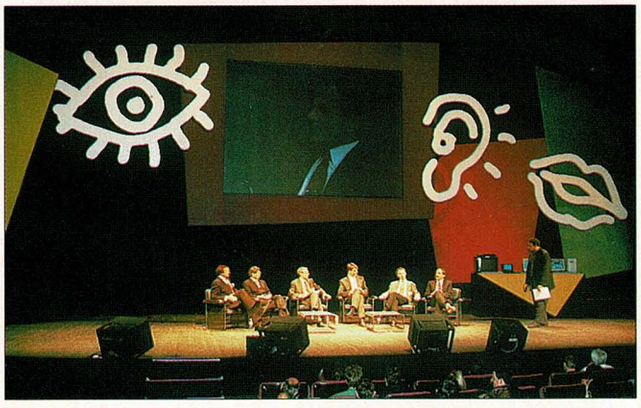
The reason behind the Forum was what Apple and many others are calling new media. It's the point where technologies like personal computers, cable TV and the Internet come together – a giant network that enables films, games and multimedia to be pumped into your home or office even as we communicate with each other.

The computer and the television – both of which use a screen to give you information – are at the heart of new media. You can already use your Mac to watch TV, and now TVs are becoming more like computers. Apple are taking part in trials for interactive cable TV schemes, based on their set-top boxes that can accept videos and games. Pippin, the games and multimedia console based on the PowerMac, is another example of how Apple are moving away from selling traditional-looking computers only and embracing the TV as well.

At the same time as this trend is developing, new technologies like CD-ROM and the fast RISC chips used in PowerMacs are transforming the potential of the computer. Software companies and creators are constantly discovering new possibilities for the Mac and what it can do. Each new development – Internet, QuickTime, cable TV – has an impact on how we use screen-based media. A new relationship between ourselves and the screen is evolving.

Satjiv Chahil of Apple's New Media Division: 'We want to work with you to drive new media forward'.

Take the example of news. Fifty years ago, news was viewed at the cinema – you saw events that had taken place as long as a week ago, along with the rest of a large audience. Now there's a television set in each room – one family member can watch the big match live in a bedroom while another sees war as it's happening on CNN. With the computer and the Internet, you'll have more control than ever over the news you receive – and you will be able to respond directly to the newsgivers, giving them more details



The main stage saw many discussions on how the new media business could succeed in the future, including this panel on the fortunes of multimedia in Europe.

MORE FORUMS

Apple New Media Forums will also be held in Los Angeles on 5 and 6 June, New York on 14 and 15 June and Tokyo in the autumn.

Publishing on the Net

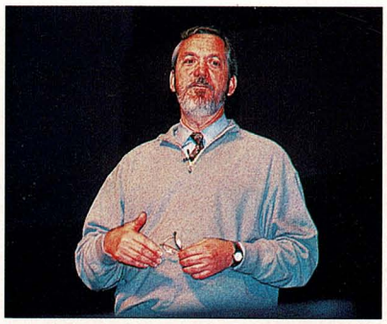
The means to pass information around the world is taking shape before our eyes – but there's a right and a wrong way to communicate, says the man behind Apple's on-line service.

or your own opinions. You will shape the news yourself.

Companies and individuals have realised what the computer is capable of and want to join the revolution. Alliances are being formed between computer firms like Apple, film and television companies, publishers, telephone companies and investors from all over the business world. For example, a deal to develop a new media network was recently struck between Rupert Murdoch's News Corporation, with its TV and print background, and the giant American telephone firm MCI.

But the spread of new media will not be achieved without difficulties – even once the cables have been laid and the much-heralded information superhighway exists. There's still an in-bred aversion to computers on the part of many people. Satjiv Chahil, the head of Apple's New Media division, cited research that shows five of out ten Americans have no wish to buy a computer – in Japan the figure is six out of ten. What's putting these people off? Chahil suggested that in order to get them involved, the new media firms would have to create systems that are easy to use, cost little and – most importantly – are relevant to the way people live.

Scientist and historian James Burke used a crowd-pleasing presentation to speculate exactly how our society might be changed by the transformations taking place. 'New media is going to redefine what knowledge is and how we use it,' he claimed.



Apple's David Nagel told program developers: 'Get inside the hearts and heads of your audience.'

Whisking through the entire growth of civilisation, Burke looked at the history of information itself, and how it has been used. Experts on a subject could command power and influence in exchange for their knowledge. But as the breadth of human knowledge increased, so did being an expert become more difficult. Burke pointed to the situation in modern science, which is broken down into ever-smaller areas of expertise.

But with the advent of new media like the Internet, knowledge in many diverse areas becomes easily accessible – a common resource. With knowledge open to all, what will society value in its place? Burke suggested that what you know will become less important than what you do with it. Your ability to remember facts will be outweighed by your ability to have ideas.

The way you use your Mac is being transformed. Just as the TV receives all its information from broadcasters through a network of transmitters and relay stations, so too will computers rely on networks – especially the Internet – to exchange information with each other. This will make everyday computing a more spontaneous experience.

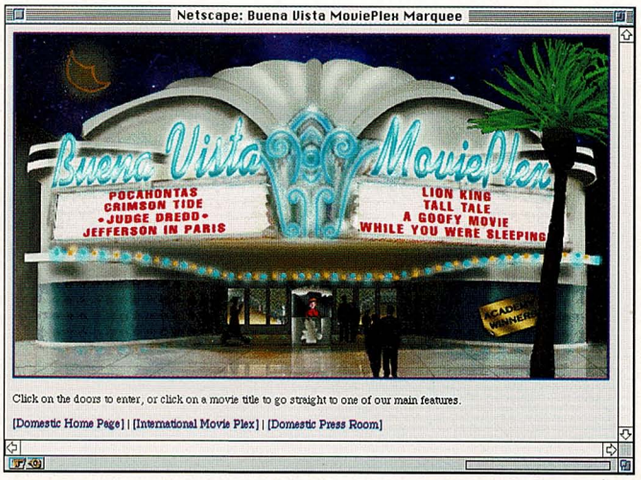
There's a key difference between receiving data over the phone and receiving it on a disk or CD-ROM. For a publisher, using the Internet means being able to sidestep the expensive and time-consuming problems of manufacturing and distribution you inevitably face, whether you're responsible for producing a magazine or a CD-ROM. Already there are far more publishers on the Web than there are in magazines. There's only an estimated five million people who are able to see their pages – although this number is growing fast, making the World Wide Web the boom area on the Internet at present.

New smaller publishers are thriving alongside the established firms that are exploring the new medium. Richard Gingras is the General Manager of eWorld – Apple's own on-line service, which features magazine and discussion areas. He has plenty of advice for those who wish to make a financial and creative success out of the medium. He believes that while book and magazine publishers have been the first to attract large audiences on the Web, they won't necessarily stay at the top. When it comes to predicting who the big names on the Web will be in a few years' time, Gingras will only say: 'Expect the unexpected.'

Which publishers will be big on the WWW? The manager of eWorld says: 'Expect the unexpected.'

Gingras sees the Web as a medium where 'success is measured in eyeballs' – the number of people you attract to your site, and how often they visit. The successful Web publisher needs to create compelling sites – with personality expressed through attitude or humour. And while regular changes are important, it's really making the visitor like your site that will bring him back again and again.

Publishers will need to find ways to make money from their visitors if they are to prosper. Simply charging people an entrance or subscription fee is not a long-term solution, suggests Gingras. He proposes instead a fluid combination of advertising, ordering goods by e-mail and charging other publishers for providing links through to their sites.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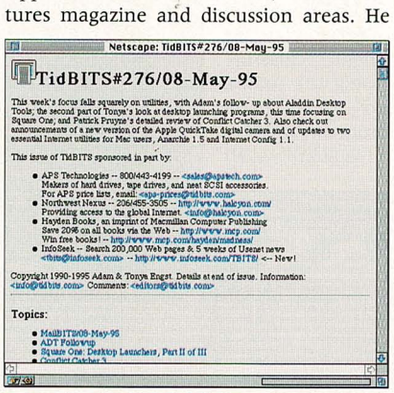
The World Wide Web has attracted big companies like Disney, who use it to publicise their films.


Netscape: TidBITS#276/08-May-95
TidBITS#276/08-May-95
This week's focus falls squarely on utilities, with Adam's follow- up about Aladdin Desktop Tools; the second part of Tonya's look at desktop launching programs, this time focusing on Square One; and Patrick Pruyne's detailed review of Conflict Catcher 3. Also check out announcements of a new version of the Apple QuickTake digital camera and of updates to two essential Internet utilities for Mac users, Anarchie 1.5 and Internet Config 1.1.
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Electronic magazines like *TidBITS* have thousands of readers every week, despite not appearing in print.

DISNEY IN UK

Disney Interactive's Dominique Bourse said the firm would be opening a creative studio in the United Kingdom within a few years – to get the best of British talent working on Disney multimedia.

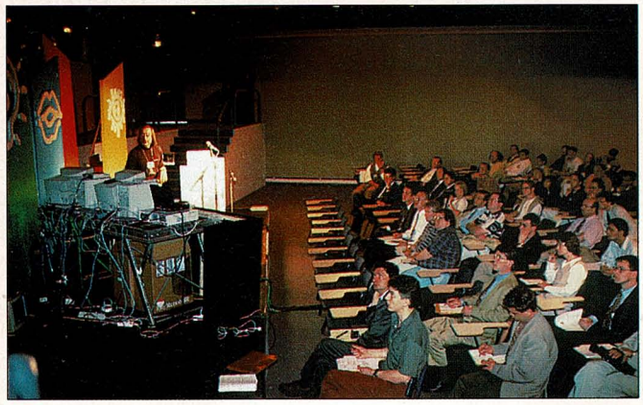
Tools for new media

The creators of new media want to appeal to a wide audience with exciting programs. A new generation of software that is intended to help them do that was on display in Cannes.

FUTURE MAC?

Among the prototypes shown by Apple at Cannes was a combined Mac, telephone, answering machine, fax and printer. Apple say they're looking at ideas for making machines relate to the way you live your life.

If you're not convinced that multimedia is taking off in a big way... well, Hollywood is. The big West Coast talent agencies are adding software creators to their client lists, which are usually limited to film directors and actors. Other developers are being bought up by larger concerns at a furious rate – just recently, Interplay bought up Shiny Entertainment on the strength of their worldwide hit game *Earthworm Jim*. Dreamworks, the huge new film-making venture backed by Steven Spielberg, will be producing multimedia tie-ins of its films with the aid of Microsoft.



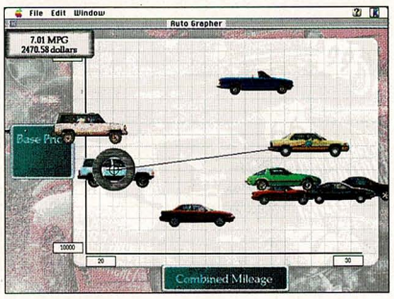
Sessions showing new tools for programmers and designers were well attended – although no-one wanted to sit at the front.

Mindful of the size of audience they could be reaching, software programmers are looking for tools that help them put their ideas together quickly – and enable them to put the finished product out on as many different types of machine as possible. No-one wants the present situation, where your choice of programs is restricted by the machine you happen to own, to continue.

A variety of programs – or authoring tools – are springing up in response to the challenge that has been presented. Apple, in particular, have especially ambitious plans. Not content with already providing a comprehensive suite of authoring programs, they are also attempting to set up a complete set of machines on which to run the software – the Pippin and interactive TV projects.

The Apple Media Kit is a suite of programs for authoring – some for designing and some for programming. Apple see a situation developing where people are working together, each bringing his own talents to the project and each needing a different tool.

Kaleida Labs are also attempting to offer software for creating multimedia on many platforms. You do the programming once, using their Script X language, and Kaleida provide a Media Player that translates the Script X instructions into code that works on each machine – the Mac and PC, for example. Kaleida are also encouraging object-based programming. With this system, you can create a small program – or object – that can be applied to a variety of uses. As an example, Kaleida showed a tape measure object calculating the price difference between two cars in one program – then charting the distance on a map in a separate program.



Kaleida's Script X language means you can create tools like this tape measure, which is measuring price differences. It works in other Script X programs.

Apple's QuickTime is an established way of creating video for use on several different computer platforms, but now Apple are extending the idea of cross-platform systems into other areas. QuickTime VR (Virtual Reality) is a system that's now available to developers. It enables you to create an environment that surrounds you. You can view part of a room, for example, on your Mac screen. You can use your mouse to move around the room at will, glancing up or down, travelling from one end to the other. You can also grab hold of certain objects and see them close-up, using the mouse to view them from any angle.

The big West Coast talent agencies are adding software creators to their client lists, which are usually limited to film directors and actors.

QuickDraw 3D is a PowerMac system used for creating 3D objects and animation. You can exchange files – which can be simple objects or fully-drawn landscapes – between any of the programs that use the system. You can also create animations that you can change at any time. The PowerMac is capable of drawing the new frames of animation so rapidly, it can even change them on the fly.

Companies like Strata, best known for 3D graphics programs like *Studio Pro*, are also entering the new media fray. *Media Paint* is a program for editing QuickTime video clips, while *Media Forge* enables to you to create multimedia programs.

It's becoming easier than ever to make your own multimedia and, through the Internet, enable others to see it. You don't have to be an expert to share your ideas with the world – all you need are the ideas and some determination.

ARTISTIC CD-ROM

Apple have joined with the Louvre in Paris to create an ambitious new media project over the next two years. But in the meantime, you can see the best of the famous gallery with BMG's new *Louvre* CD-ROM – look out for a review in MACFORMAT soon.

Simply by using a camera you can bring virtual reality to your Mac with the help of QuickTime VR. This is a panoramic view of Apple's HQ in California.

Once the photo images are in your Mac, QuickTime VR corrects the distortions on the photos and turns them into an environment you can look around and walk through.

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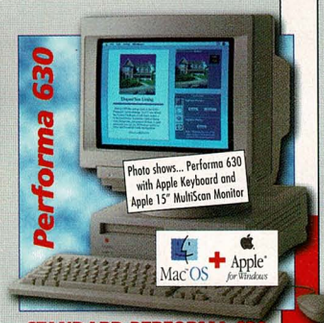

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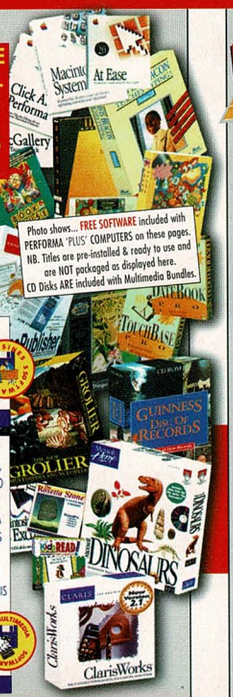
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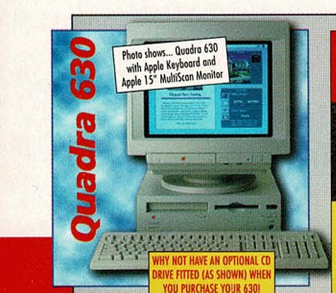
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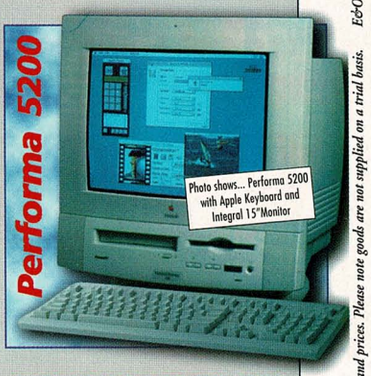

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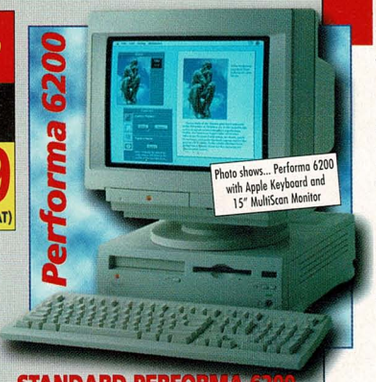
(£1279.58 inc. VAT)



All our Performa 6200's are supplied with... System 7.5.1 Software, At Ease, PC Exchange, NEW Claris Works 3.0, Mavis Beacon Teaches Typing, Spectre Supreme, Click Art Performa, MacGallery Clip Art, Manuals, Mouse, Connecting Cables etc and, just like 5200s, FEATURE... the NEW PowerPC 603 CPU for A REAL BOOST IN speed!

REMEMBER THE GH BUNDLE WHEN COMPARING PRICES TO OTHER DEALS ON OFFER!

STANDARD PERFORMA 6200 SYSTEMS & SOFTWARE

All GH 5200s incorporate, CD600i Drive, 500 Mb. Hard Drive, Built-In Speakers (some packs include Stereo Apple Design Speakers), Infra Red Remote Control (TV versions), Apple Design Keyboard, Mouse, Cables, and Manuals.

RAM	HD	CD	TV	MONITOR	Sys	Price
8Mb.	500Mb.	✓	✗	NONE	7.5.1	£1089 (£1280)
8Mb.	500Mb.	✓	✗	14" Performa Plus	7.5.1	£1249 (£1468)

PERFORMA 6200 'PLUS' MULTIMEDIA BUNDLE

When you buy a GH 6200 'PLUS' Multimedia you are also...

SUPPLIED WITH... Tutorials, Mavis Beacon Teaches Typing, Spectre Supreme (Game), Click Art Performa, MacGallery Clip Art Treasure Pack PLUS... GROLIER MULTIMEDIA ENCYCLOPAEDIA, 1994 GUINNESS DISK OF RECORDS, MICROSOFT DINOSAURS, ROSETTA STONE POWER PACK, THE SAN DIEGO ZOO PRESENTS THE ANIMALS, BEATRIX POTTER'S THE TALE OF BENJAMIN BUNNY and LEONARDO THE INVENTOR ...on ALL CD ROM!!!

PERFORMA 6200 SYSTEMS...

RAM	HD	CD	TV	Monitor	DesSpeakers	Sys	Price
8Mb.	500Mb.	✓	✗	14"Trinitron	✓	7.5.1	£1349 (£1586)
8Mb.	500Mb.	✓	✗	15" MultiScan	✗	7.5.1	£1449 (£1703)
12Mb.	500Mb.	✓	✓	14"Trinitron	✓	7.5.1	£1549 (£1821)
12Mb.	500Mb.	✓	✓	15" MultiScan	✗	7.5.1	£1699 (£1997)

Finance and Leasing Facilities are available for both individuals and businesses (subject to status, please ask us for full written details)

**FLEXIBLE BUDGET PLAN: FOR PERSONAL INDIVIDUALS VISITING OUR SHOWROOM, PAY A MINIMUM OF 10% DEPOSIT NOW, THEN SPREAD THE COST OF YOUR SYSTEM WITH CONVENIENT MONTHLY PAYMENTS. Interest is simply charged monthly, meaning the agreement can be settled at any time by repaying the current balance with NO cancellation penalties. Interest Rate (variable) - Direct Debit APR 27.8%/2.07% per Month - Payment Book 32.4%/2.37% per Month. Written details/quotations available on request. *Subject to status. Please contact us prior to your visit for details of easy application requirements.*

All listed prices are what YOU PAY, and there are NO HIDDEN EXTRAS. Prices are correct at time of going to press (Pack details may vary from time to time). Offers and Services are subject to availability and to being the latest advertised products, packs and prices. Please note goods are not supplied on a trial basis. E&OE.

Powermacs

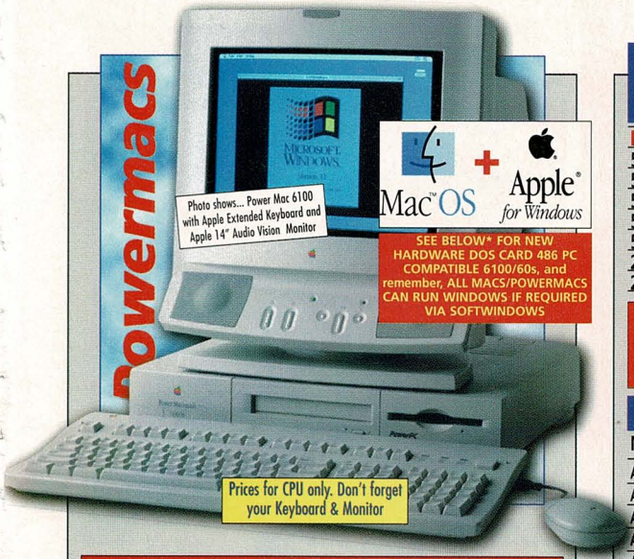


Photo shows... Power Mac 6100 with Apple Extended Keyboard and Apple 14" Audio Vision Monitor
Prices for CPU only. Don't forget your Keyboard & Monitor

Mac™OS + Apple® for Windows

SEE BELOW* FOR NEW HARDWARE DOS CARD 486 PC COMPATIBLE 6100/60s, and remember, ALL MACS/POWERMACS CAN RUN WINDOWS IF REQUIRED VIA SOFTWINDOWS

BUILD YOUR OWN POWERMAC SYSTEM - WITH GH CPUs

POWERMACS FROM ONLY... £949 (£1115.08 inc. VAT)

GREAT PERFORMANCE AND PRICE ON THE RANGE OF POWERMACS FROM GH

GREAT DEALS ON ENTRY LEVEL POWERMAC 6100s

	RAM	Hard Drive	CD	Price
6100/60	8Mb.	250Mb.	✗ While Stocks Last	£949 (£1116)
6100/60 CD	8Mb.	250Mb.	✓	£1099 (£1292)
6100/66	8Mb.	350Mb.	✗	£1199 (£1409)
6100/66 CD	8Mb.	350Mb.	✓	£1349 (£1585)
6100/60 + PC*	8Mb.	250Mb.	✗	£1610 (£1892)
6100/60 CD + PC*	8Mb.	250Mb.	✓	£1725 (£2027)

** 6100/60 PC Systems include 486 DX2 66MHz hardware card & MS DOS 6.2 (Windows may be purchased separately)*

GH BONANZA ON MID-RANGE POWERMAC 7100s

	RAM	Hard Drive	CD	Price
7100/80	8Mb.	350Mb.	✗	£1875 (£2204)
7100/80 CD	8Mb.	700Mb.	✓	£2178 (£2560)
7100/80 CD-AV	8Mb.	700Mb.	✓	£2293 (£2695)

BUILD YOUR OWN POWERMAC SYSTEM - WITH GH CPUs

POWERMAC 8100s FROM... £2549 (£2995.08 inc. VAT)

THE WORLD's FASTEST DESKTOP COMPUTER... The Apple Powermac 8100/110... available at GH LOW prices!

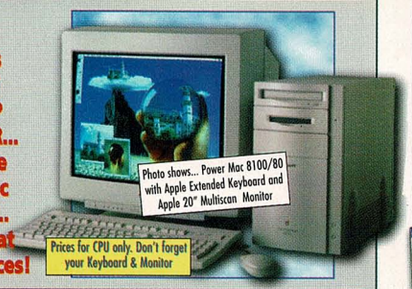


Photo shows... Power Mac 8100/80 with Apple Extended Keyboard and Apple 20" Multiscan Monitor
Prices for CPU only. Don't forget your Keyboard & Monitor

SAVE WITH GH ON POWERMAC 8100/100s

	RAM	Hard Drive	CD	Price
8100/100	8Mb.	700Mb.	✗	£2549 (£2996)
8100/100 CD	16Mb.	700Mb.	✓	£2935 (£3449)
8100/100 CD-AV	16Mb.	1000Mb.	✓	£3190 (£3749)

PRICE CRASH — POWERMAC 8100/110

	RAM	Hard Drive	CD	Price
8100/110 CD	16Mb.	2000Mb.	✓	£3899 (£4582)

"Confirm you're getting the BEST DEAL - call those friendly people at the UK's FAVOURITE RESELLER!"

"Got a technical problem?" "Need an Upgrade?" "Want a new peripheral fitting?" LOOK NO FURTHER... Our Apple Approved Engineers will do the job.

POWERBOOKS

NEW 150 - 4/250 + Claris Works 2.1	£749	(£881)
520 - 4/240 + Mobility Pack	£1199	(£1409)
520c - 4/240 + Mobility Pack	£1699	(£1997)
520c - 12/320 + Mobility Pack & Modem	£2249	(£2643)
540c - 4/320 + Mobility Pack	£2699	(£3172)
540c - 12/500 + Mobility Pack & Modem	£3299	(£3877)
280c - 4/500 + Mobility Pack	£2199	(£2584)
280c - 12/500 + Mobility Pack & Modem	£2499	(£2936)

NEW... PCMCIA/GSM Mobile Phone Interface for POWERBOOK 500 Series - SOME PACKS INCLUDING MOBILE PHONES!!! - CALL GH NOW FOR DETAILS!

POWERBOOK ACCESSORIES & SOFTWARE

150/Duo 230 - 4Mb. RAM Upgrade	£166	(£195)
140/45,150,160/65,170,180/c - Battery	£43	(£50)
500 - 4Mb. RAM Upgrade	£171	(£200)
500 - Express Modem	£325	(£381)
500 - PCMCIA Expansion	£113	(£132)
500 - Type III Intelligent Battery	£90	(£106)
Duo - Dock Plus inc. 230HD & VRAM	£622	(£730)
Duo - External 1.44 Mb. Floppy Drive	£94	(£110)
Duo - Floppy Drive Adaptor	£81	(£95)
Duo - Deluxe Leather Carry Bag	£120	(£140)
Duo - Type III Rechargeable Battery	£77	(£90)
Powerbook (non Duo) - Security Kit	£26	(£30)
All Powerbooks - Norton Essentials	£81	(£95)

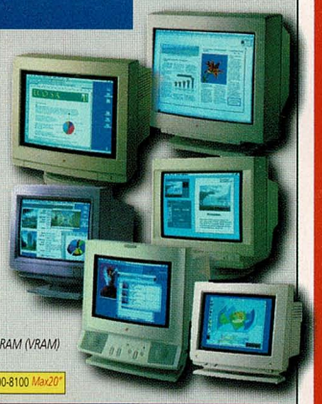
PHONE for more accessories/software!

GH MONITOR MADNESS...

Monitor Model		Price
Apple 14" Performa Plus (.28)	£209	(£246)
Apple 14" Trinitron (.26)	LOWER PRICE £239	(£281)
Apple 14" AudioVision (.26)	£345	(£406)
Apple 15" MultiScan (.28)	£299	(£352)
Apple 17" Trinitron MultiScan (.25)	£659	(£775)
Apple 20" Trinitron Multiscan (.26)	£1399	(£1644)
Sony 15" SFI Trinitron MultiScan (.26)	£345	(£406)
Sony 17" Trinitron MultiScan (.26)	£659	(£775)
SuperMac 17" Trinitron MultiScan (.25)	£649	(£763)
SuperMac 20" Trinitron Multiscan (.26)	£1199	(£1409)
Raster Ops 20" Trinitron Tube	£1199	(£1409)
Raster Ops 21" Hitachi Tube	£895	(£1052)

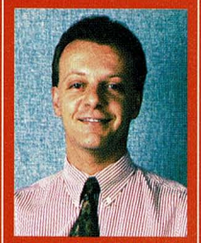
NB. Shown below are the sizes of monitors individual Macs can run (some require more Video RAM (VRAM) for this and/or in order to increase the Maximum number of colours that can be displayed)

LC III/Performa 450-460-630/Quadra 630/Powermac 6100-5200-6200 *Max 17"* Performa 475/Powermac 7100-8100 *Max20"*



MACINTOSH KEYBOARDS

Apple Design Keyboard	£79	(£93)
Apple Extended Keyboard	£139	(£164)
Apple Adjustable Keyboard	£165	(£194)



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Giles Harwood - Managing Director

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BY PHONE: We'll help with any queries and when you're ready to order we accept Visa, Mastercard, Access, Switch, Connect, Delta and Lombard Creditcharge (most 'store cards' are Lombard Creditcharge and we happily accept them).

BY POST or FAX: When ordering include your name, address and preferably a contact phone number with your order requirements. If charging a credit/debit card include its number and expiry date (and issue number with Switch cards). Make Cheques (please allow 7 days clearance prior to despatch), Bankers/Building Society Drafts or Postal Orders payable to Gordon Harwood Computers

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For the convenience of personal and business customers, we list prices both with and without VAT (to the nearest full £ - shown in brackets)

EXPORT: Most items are available at TAX FREE PRICES to non EC residents & overseas UK Armed Forces Personnel (with CO's document). Please call us for confirmation of prices and carriage charges.

DELIVERY: We ship promptly & offer delivery of all orders throughout Mainland UK & most products overseas. If your order is urgent we have priority despatch options with express delivery available.

MACINTOSH UPGRADE - CHIPS

RAM - 4Mb. SIMMS	£115 (£136)
RAM - 8Mb. SIMMS	£219 (£258)
RAM -16Mb. SIMMS	£359 (£422)
Powermac 256K Cache	£159 (£187)

MACINTOSH UPGRADE - BOARDS

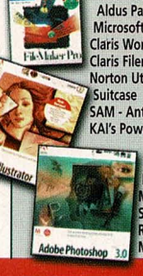
LC 475 to Powermac Card	£429 (£505)
LC 630 to Powermac Card	£429 (£505)
Performa 630 FULL 68040	£309 (£364)
Powermac 6100 PC 486 DX2 66MHz	
Microsoft DOS Card	£399 (£469)
Collect/fit & delivery add	£30 (£36)

TV AND VIDEO CARDS

630 Video-In Card	£90 (£106
630 Video-In and TV Tuner Card	£210 (£247)
630 Video-Out Card	£210 (£247)
Raster Ops Paintboard Prism 24-Bit Accelerated Graphics Card	£539 (£634)

TOP 30 MACINTOSH SOFTWARE TITLES

Quark Xpress 3.3 - Native	£638 (£750)	Connectix Speed Doubler	£60 (£70)
- 68030	£587 (£690)	Retrospect	£153 (£180)
Adobe Illustrator 5.5	£289 (£340)	Letraset Painter	£255 (£300)
Adobe Photoshop 3.0	£400 (£470)	Suitcase2.1.4	£43 (£50)
Aldus Page maker	£399 (£467)	Adobe Type Manager	£47 (£55)
Microsoft Word	£249 (£293)	WriteNow	£30 (£35)
Claris Works 3.0	£98 (£115)	Microsoft Excel	£255 (£300)
Claris Filemaker Pro	£98 (£115)	Aldus Freehand 5	£332 (£390)
Norton Utilities	£81 (£95)	Autoroute Express	£98 (£115)
Suitcase	£49 (£58)	M.Y.O.B	£170 (£200)
SAM - AntiVirus	£55 (£65)	Claris Organiser	£47 (£55)
KAI's Power Tools	£106 (£125)	Encarta CD	£64 (£75)
KPT Bryce	£64 (£75)		
KPT Convolver	£106 (£125)		
Microsoft Office	£362 (£425)		
Microsoft Word 6	£255 (£300)		
SAM 4.0	£102 (£120)		
RAM Doubler	£60 (£70)		
Myst CD	£34 (£40)		



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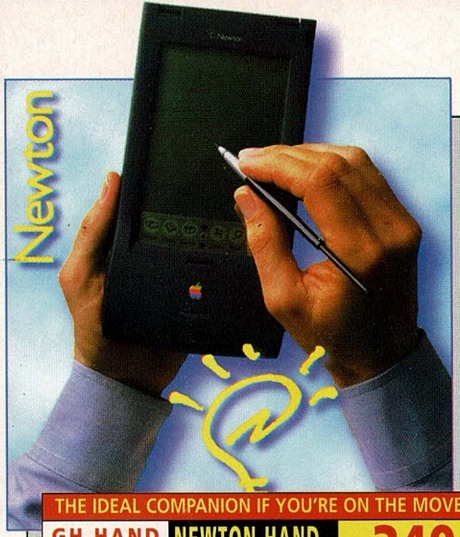

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GH HAND HELDS NEWTON HAND HELDS FROM... **£340** (£399.50 inc. VAT)

NEWTON 110 -1Mb.	£340	(£400)
NEWTON 120 - 2Mb.	£399	(£469)
1Mb. Storage Card	£60	(£70)
2Mb. Storage Card	£111	(£130)
4Mb. Storage Card	£199	(£234)
Connection Kit - Mac	£51	(£60)
Connection Kit - Windows	£51	(£60)
Leather Carrycase - 100/Original Message Pad	£34	(£40)
Leather Carrycase - 110/120	£42	(£50)
Battery Pack Wall Recharger inc. Battery - 100	£34	(£40)
Mains a/c Charging Station inc. Battery -110/120	£47	(£56)
Nicad Battery - 110	£14	(£17)
Nicad Battery - 100/Original Message Pad	£13	(£16)
Tapworks	£51	(£60)
Graffiti	£39	(£46)
GoFigure (15 Calculators)	£25	(£30)
Dell Crosswords	£30	(£36)
Notion	£42	(£50)
Dyno Notepad	£38	(£45)
Filepad	£81	(£96)
Columbo's Mystery Capers	£25	(£30)
Day Timer & Expense Pack	£60	(£71)
Personal Time Billing	£68	(£80)

Model	Resolution (dpi) Optical	Max	Photoshop	Price
VISTA T630	600 x 300	4800	LE	£449 (£528)
VISTA S6	600 x 300	4800	LE	£529 (£622)
VISTA S8	800 x 400	6400	LE	£579 (£681)
UCI 1260	1200 x 600	9600*	Full	£825 (£970)
POWERLOOK PRO	1200 x 600	9600*	Full	£2199 (£2584)

*Available soon with new interpolation software

VISTA S8

GH SCOOP SCANNER BARGAIN... £579 (£680.33 inc. VAT)

GH OMNIPAGE SOFTWARE OPTION... Buy Omnipage with ANY Umax Scanner from GH and pay just... £45 (£53)

GENUINE UK UNITS... ALL GH UMAX PRODUCTS COME WITH 1 YEAR ON-SITE WARRANTY & POWERLOOK SCANNERS COME WITH BINUSCAN DEMO SOFTWARE. LOOK OUT - GREY IMPORTS DON'T!

Transparency Adaptors (please quote Umax scanner model when ordering)	£429	(£505)
50 Sheet Document Feeder for Vistas	£389	(£458)

APPLE SCSI HARD DISK DRIVES

GH MACPAC EXTRA APPLE HARD DRIVES FROM... **£280** (£329.00 inc. VAT)

Designed & Styled to match your Mac System

HD Specification	Price
325Mb. External Hard Drive	£309 (£364)
500Mb. External Hard Drive	£359 (£422)
1000Mb. External Hard Drive	£669 (£787)

QUANTUM SCSI HARD DISK DRIVES

INTERNAL SCSI HD Spec	Price	EXTERNAL SCSI HD Spec	Price
365Mb.	£149 (£176)	365Mb.	£229 (£270)
540Mb.	£175 (£206)	540Mb.	£259 (£305)
730Mb.	£209 (£246)	730Mb.	£289 (£340)
1000Mb.	£419 (£493)	1000Mb.	£499 (£587)
2100Mb.	£779 (£916)	2100Mb.	£859 (£1010)

TEXAS INSTRUMENTS 600dpi LASER BARGAIN

GH MACPAC EXTRA 600dpi LASER PRINT FROM... **£599** (£703.83 inc. VAT)

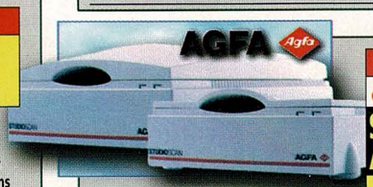
GH VALUE 600dpi QUALITY LASER PRINTER

If you've been waiting for the expense of 600dpi Laser Printing to COME DOWN, but not at the cost of quality - your wait is over! The new TEXAS INSTRUMENTS MICROLASER 600 could be the answer to your dreams with its feature packed specification...

- A4 Paper Size • 250 Sheet Paper Tray • Fast 5ppm Printing
- True 600 x 600 dpi Resolution • Adobe Postscript Level 2
- PCL 5 Emulation • RISC Processor • Energy Conservation Feature
- Autosensing Connections for MAC or IBM Compatibles
- Options to add a Universal Sheet Feeder for a variety of paper sizes (eg. Laser Labels, Laser Envelopes, Transparencies etc.)
- 2 or 4Mb. RAM (max 10Mb.)

Please note that 600dpi print files are FOUR TIMES the size of equivalent 300dpi print files FOR ALL PRINTERS - GH therefore recommends that whilst 2Mb. is adequate for WP etc., 4Mb. or more will extend the capabilities for large graphic output files etc. at 600dpi.

TI Microlaser 600 Model...	Price
Microlaser 600 with 2Mb. RAM	£599 (£704)
Microlaser 600 with 4Mb. RAM	£725 (£852)
2Mb. RAM Upgrade	£145 (£171)



AGFA SCANNERS

GH SPECIAL!!! STUDIOSCAN II AT ONLY... £679 (£762.58 inc. VAT)

When you buy an Agfa Studio Scan or StudioScan II from GH, you'll also get Foto Snap software (which auto controls density, unsharp masking and moire patterning etc., WHILST YOU SCAN!), FotoTune LE (Agfa colour management system) and FotoLook plus Software as well as Imaging software as listed below.

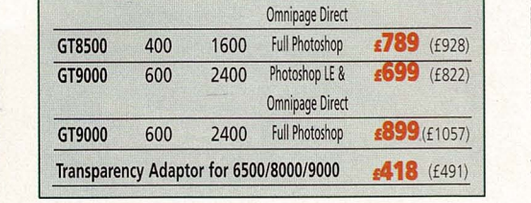
Model	Resolution (dpi) Optical	Max	Software	Price
STUDIOSCAN	600 x 300	2400	Photoshop LE	£679 (£798)
STUDIOSCAN II	800 x 400	2400	Photoshop LE Omnipage Direct	£649 (£763)
ARCUS II with Trans. Adaptor	1200 x 600	3600	Photoshop LE & Omnipage Direct	£2399 (£2819)

SCANNER SAVERS

GH MACPAC EXTRA MAC SCANNERS STARTING AT... £459 (£539.33 inc. VAT)

Epson Scanners include CUSP, 1st year on-site REPLACEMENT from distributor 'Customer Satisfaction Programme'

Model	Resolution (dpi) Optical	Max	Software	Price
GT 6500	300	1200	Photoshop LE & Omnipage Direct	£459 (£540)
GT 6500	300	1200	Full Photoshop	£639 (£751)
GT 8500	400	1600	Photoshop LE & Omnipage Direct	£599 (£704)
GT8500	400	1600	Full Photoshop	£789 (£928)
GT9000	600	2400	Photoshop LE & Omnipage Direct	£699 (£822)
GT9000	600	2400	Full Photoshop	£899 (£1057)
Transparency Adaptor for 6500/8000/9000				£418 (£491)



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The best & most cost effective way to back up your valuable files! Each recordable CD can hold up to 680Mb. of fast random access data which works out at... AS LITTLE AS... 3p per Mb. - compare that to other storage media! RCD CDs are reliable with a 5 year shelf life specification.

WRITEABLE CDs!!!

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The RCD 1000 is supplied with back up mastering software, all cables, terminator and an easy guide manual.

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***FLEXIBLE BUDGET PLAN:** FOR PERSONAL INDIVIDUALS VISITING OUR SHOWROOM, PAY A MINIMUM OF 10% DEPOSIT NOW, THEN SPREAD THE COST OF YOUR SYSTEM WITH CONVENIENT MONTHLY PAYMENTS. Interest is simply charged monthly, meaning the agreement can be settled at any time by repaying the current balance with NO cancellation penalties. Interest Rate (variable) - Direct Debit APR 27.8%/2.07% per Month - Payment Book 32.4%/2.37% per Month. Written details/quotations available on request. *Subject to status. Please contact us prior to your visit for details of easy application requirements.*

All listed prices are what YOU PAY, and there are NO HIDDEN EXTRAS. Prices are correct at time of going to press (Pack details may vary from time to time). Offers and Services are subject to availability and to being the latest advertised products, packs and prices. Please note goods are not supplied on a trial basis. E&OE.

Stylus COLOR

720dpi COLOUR INKJET QUALITY PRINT!!!

GH MACPAC EXTRA — **EPSON STYLUS COLOUR JUST... £379** (£445.33 inc. VAT)

GH have secured stocks of this exciting and revolutionary NEW HIGH QUALITY COLOUR INKJET PRINTER! Boasting an incredible 720dpi resolution max. output, the Epson Stylus Colour really IS unique! Take a look at magazine reviews to see the glowing reports about this printer. If you need THE ULTIMATE in LOW COST colour proofing devices - THIS IS THE ONE for you.

NEW... STYLEWRITER I200

Mono 360dpi x 720dpi Inkjet 3PPM Printer for budget laser-like quality output. Quickdraw GX compatible.

StyleWriter I200 **£199** (£234)

Phone for prices on last few StyleWriter IIs

STYLEWRITER 2400 COLOUR

Replacement for the Apple Colour StyleWriter Pro. Excellent 360dpi colour output. Ideal for proofs etc.

StyleWriter 2400 Colour **£382** (£449)

CITIZEN PN60 PORTABLE

The World's Smallest/Lightest Printer! Laser Quality Mono or FULL Colour output!

Citizen PN60	**£229**	(£269)
Recharch. Battery	**£35**	(£42)
Black Ribbon	**£6**	(£7)
Colour Ribbon	**£10**	(£12)

HP DESKWRITER INKJETS

HP320 - Mono 600 x 300dpi	**£190**	(£224)
HP320 - Inc. Sheet Feeder	**£214**	(£252)
HP540 - Mono 600 x 300dpi	**£249**	(£293)
HP660 - Colour 600 x 300dpi With Resolution Enhancement!	**£349**	(£411)

GH LASER BARGAINS

APPLE'S OWN LASERS FROM... £429 (£504.08 inc. VAT)

APPLE LASERWRITER PRINTERS

Personal LaserWriter 300 - 300dpi, 4ppm	**£429**	(£505)
LaserWriter 320 - 300dpi, 5ppm, P/Script Level 2	**£649**	(£763)
LaserWriter Select 360 - 600dpi, 10ppm, Postscript Level 2	**£1049**	(£1233)
LaserWriter 16/600 - 600dpi, 16ppm, Postscript Level 2	**£1599**	(£1879)

PRINTER CONSUMABLES

StyleWriter...		
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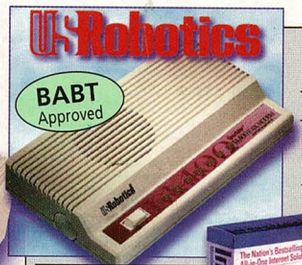

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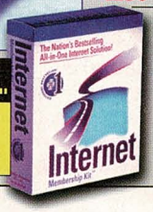

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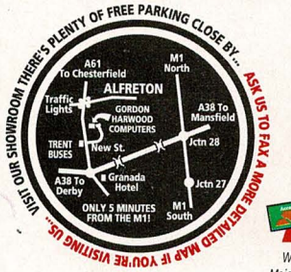

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Every letter and postcard published on these pages wins an exclusive MACFORMAT binder, custom-designed for binding MACFORMATS. If you like to do things the hard way, of course, you can actually buy one instead – see page 117.

To complement this issue's animation cover feature, how about an animated discussion? It works like this: you contribute your views, we print your letter here, and in return you get a nice shiny new MACFORMAT binder, completely exclusive to you! (And anyone else who's had a letter published, obviously. Or bought one. Exclusively.)

The hard buy?

After reading the feature in MACFORMAT 21 about desktop video etc, I decided to upgrade all the way from a Classic II to a 630AV with all the bells and whistles. So I took your advice and scanned the adverts in MACFORMAT, added my local Apple-Centre to the list, and faxed five of them and e-mailed one. This was Saturday, cheap phone rates.

Three companies had their faxes switched off – well, it was the weekend, I suppose. Nothing daunted, I faxed the remainder on Monday. A week later only three have bothered to reply. One did not quote the full specification, while the remaining two got it right but cannot supply me immediately as they are awaiting supply from Apple.

I appreciate that this is not an order for a multi-unit network, but we are talking two grand here. On the basis of 'if they are not interested when I am trying to buy, they won't be when things go wrong', guess who gets the order?

The e-mail? Lost in cyberspace, I guess.

Jim McCormick
Glenrothes, Fife

My question is, is this a phenomenon peculiar to computer dealers? I suspect not. Anyone else got any views on the hassles of buying Macs?

Monitoring the situation

We are students at Huddersfield University conducting research into what factors influence people who buy monitors separately rather than as part of a system. It would be a great help if anyone who has or intends to buy a monitor could spare a few minutes to answer some questions.

1. Did you or would you buy direct from an advertisement in a magazine?
2. How important was price compared to specification?
3. What factors would influence your choice in the purchase of a monitor?
4. Did computer magazine test verdicts influence you?

Please send your answers by freepost to: Paul Oxley, The University of Huddersfield, FREEPOST, Bradford BD4 6BR, or by e-mail: **B9350953@prime1.huddersfield.ac.uk** or **B9350959@pegasus.huddersfield.ac.uk**

If you would like to be even more help to us, we would like to send you a more detailed questionnaire on the subject.

Paul Oxley, Mark Scragg, Paul Rich
The University of Huddersfield

The answer to question 4, of course, is 'Yes, the monitor reviews on page 80 of this issue of MACFORMAT were absolutely invaluable.'

Pinball miser

I have a yearning for a pinball game to play on my Mac (well, my Dad's Mac), but I can't afford *Crystal Caliburn* and I haven't seen any shareware pinball games around. If you know of any, please put one on a future cover disk! If there aren't any, how about writing one (maybe one where you have to hit Nazis to score points?) :-D

Fancy yourself as a pinball wizard? There has to be a twist, and it's this: there's no such thing as a free ball.

Lucy Evershed (Age 15)
Helston, Cornwall

Unfortunately, Derek Smith, who compiles our cover disks and writes our shareware reviews, says he's pretty sure there isn't a shareware pinball game. He'd probably have found it if there was – he also happens to be a bit of a pinball fan himself. (He reviewed the sequel to Crystal Caliburn, Loony Labyrinth, *in* MACFORMAT *23, mainly because he grabbed the game as soon as it came into the office and growled menacingly at anyone who looked even remotely like wanting to try it too.) If anyone knows of one, we'd love to see it. Soon. Derek's got twitchy again from the mere mention of pinball. (Nazis not essential, thanks!)*

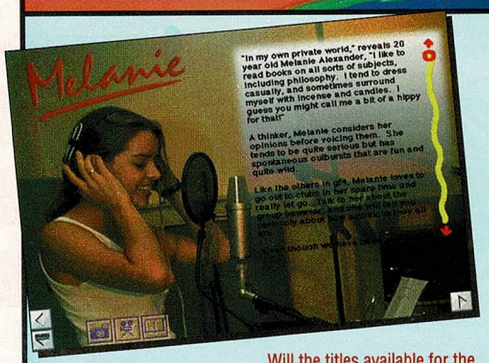
Another port in a storm

In MACFORMAT 21, your Mac Answers experts had various suggestions for David Leitch, who wanted to connect a printer, fax modem *and* network lead to his Mac, but of course had only two serial ports. Is there any reason you did not suggest Port Juggler, which you mentioned back in MACFORMAT 10?

Mike Blundell
Birmingham

Only that it's an American product, not directly distributed in this country, and had slipped our minds. Port Juggler is a neat little interface

PIPPIN: NO PURPOSE, NO MARKET, NO BUYERS?


Melanie
"In my own private world," reveals 20 year old Melanie Alexander, "I like to read books on all sorts of subjects, including philosophy... I tend to dress casually, and sometimes surround myself with incense and candles... I guess you might call me a bit of a hippy for that."
A thinker, Melanie considers her opinions before voicing them. She tends to be quite serious but has spontaneous outbursts that are fun and quite wild.
Like the others in q95, Melanie loves to go out to clubs in her spare time and really let go... It's to her advantage that she's so easy-going, because this is how she is all the time.

Will the titles available for the Pippin (or rather, Power Player) be enough to tempt you to buy?

When I first heard about Apple's 'Pippin' machine *[See News,* MACFORMAT *24]* I was struck by a sudden sense of *déjà vu*. The mention of a new home multimedia system based on a popular personal computer brought back memories of 1991 and Commodore's ill-fated CDTV, which eventually turned out to be a whopping great flop. It was based on exactly the same concept – the machines even look alike – and the sales were so incredibly poor that the machine was unceremoniously ditched, leaving all three users in the lurch.

Some may argue that the machine just wasn't good enough – but it is the whole concept that is the problem. What is a 'home multimedia player' anyway? Is it a cut-down computer or an expandable console? Whichever way you look at it, it cannot compare with the 'real thing' in either category. If people want multimedia they'll probably opt for a home computer so they can do other things as well, and if they want games they will opt for a vastly superior and much hyped 'super console'.

Software availability is another potential failing – you won't ever be able to buy Pippin software up your high street, and at release all of the titles will probably be pure dross anyway. Compare this with the vast array of stunning PC titles and the superb line-up for the superconsoles. So that leaves Pippin as a machine without a market, without a purpose and without any buyers. In my view Apple are too busy rushing headlong into the future. Perhaps they should learn the lessons of the past before pouring more cash into Pippin.

Neil Simpson
Hawick, Scotland

that enables you to plug up to four serial devices into one of your serial ports: you plug it in, set up software once to indicate what's plugged into where, and after that it's all automatic. Port Juggler can also be used to share one serial device (a printer or modem, say) between up to four Macs. Port Juggler 3.0 costs $99 plus $35 postage (a total of about £80, I make it) from Momentum Inc in the US, tel 00 1 808 263 0088 or fax 00 1 808 263 0099.

Trying to start a fight?

I've been thinking about upgrading my IIvx for some time – it's getting a bit slow. So I look up the cost of a PowerMac logic board upgrade *[See last month's cover feature]* – over a thousand pounds. Plus I discover that all my current programs will only run under emulation, so I won't gain any speed advantage at all unless I upgrade to PowerMac versions. Hmmm, I'm thinking... so I'll have to buy a new computer *and* change all my software. Bingo! Why don't I buy a PC?

I can get a whole Pentium setup (including keyboard, hard drive, floppy drive, video cards etc) for less money than the cost of just a logic board upgrade! Plus there is vastly more software available (including previously Mac-only programs like *Photoshop*) – and it's all far cheaper! If I want to upgrade in future all I have to do is pull out the chip and insert a different one. The whole setup is modular, *and* I don't need 8Mb of RAM just to run the System software.

As far as I'm concerned, Apple have lost it. What's the point in spending several hundred pounds to buy the *SoftWindows* software (and then fork out several hundred more for the RAM required to run it)? Buy a cheap 386 for a few hundred. *SoftWindows'* emulation is pretty poor anyway – it can't even run 386 enhanced mode.

And what is the point of System 7.5? A PowerMac running *SoftWindows* needs 16 megs of RAM under System 7.5 just to run all the System software. If that isn't bad design I don't know what is.

I never thought I'd see myself buying a PC over a Mac, but since all my favourite programs are available now...

'March'
Via CIX

I suspect that plenty of MACFORMAT *readers will want to... um, contribute to this discussion, so I'll make just two points. First, as we pointed out in our PowerMac feature last month, you* will *gain a speed advantage running non-PowerMac-native software on a PowerMac. You can upgrade a IIvx to PowerMac 7100/66 level, and that's definitely faster than a IIvx even running older 680x0 software. Second, it isn't simply the System software that takes all that memory – it's* SoftWindows *itself. A new version is due out soon, though – watch for details in* MACFORMAT *on what it has to offer. But yes, forking out for a PC emulator does seem a little impractical when you could just about buy a cheap PC for less. And yes, the cost of a logic board upgrade is high – again, see last issue for our assessment of whether it's worth it for your particular machine. As for the rest of the points here: over to you then, readers!*

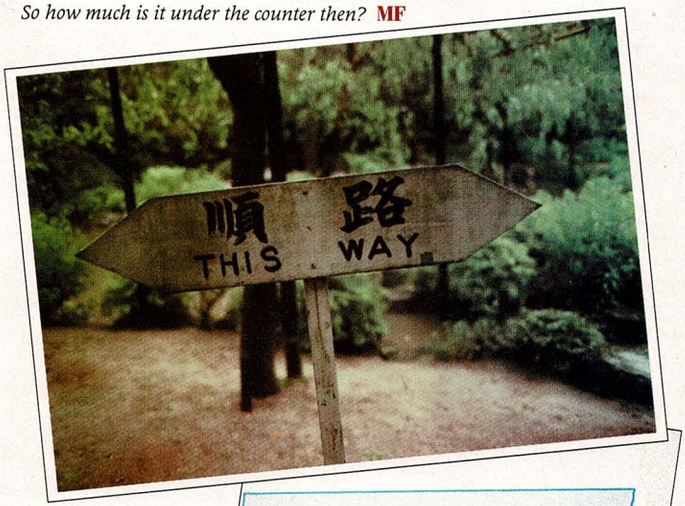
You think you've got it bad...

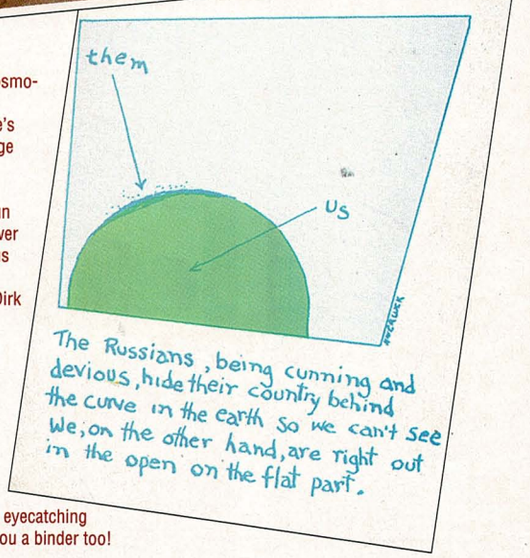
Hello from Sapporo, Japan. I really enjoy MACFORMAT and always look forward with bated breath to each new edition. I have dutifully subscribed at your realistic (arguably cheap?) subscription price, as opposed to buying it here at one of the foreign language book stores – the over-the-counter price currently being £17 per copy! No, I am not joking. Next time unemployed father of two complains about the price, quote me.

Sayonara and Kampai (Cheers!),

Simon Thollar
Via FutureNet

So how much is it under the counter then? **MF**




them
Us
The Russians, being cunning and devious, hide their country behind the curve in the earth so we can't see We, on the other hand, are right out in the open on the flat part.

While we're being cosmopolitan, and looking forward to next issue's travel theme (see page 137), here's two MACFORMAT binder winners with a foreign motif: Carmen Brouwer of Amsterdam sent us this helpful Kyoto roadsign (photo by Dirk Buwalda), and Paul Lambert of East Croydon in Surrey found this insight from Canadian cartoonist Bob Haverluck. Remember, whenever you write to MACFORMAT or enter a compo, an eyecatching postcard could win you a binder too!

SEEN IN ALL THE BEST PLACES...

Some issues ago, we asked for sightings of 'celebrity Macs' in the media, or unusual uses. We had one letter about the scene in Star Trek IV *where Scotty speaks into a mouse. We asked for more...*

Yes, I've seen Macintoshes used on TV, and once on that film where this daft bint had a flatmate who tried to take over her identity (I forget the name and the rest). I saw the one in *Star Trek IV* too. But the most unusual use of a Macintosh I've seen is in the Sky re-runs of *Moonlighting*. They never have it turned on and never seem to do any work (or games) either. Any typing is done by Agnes at the front desk on the typewriter (which the Mac is not).

Immortals seem to like Macintoshes too. Both Duncan McLeod from the TV series of *Highlander* and Clark Kent from *The New Adventures of Superman* have PowerBooks (didn't see the model numbers – sorry!). Duncan used it for hacking into confidential databases and Superman was writing a novel.

And there was that chap who is trying to declare the Valley of the Kings an environmental disaster site – he used a PowerBook too. And did you notice the Portable Mac that the FBI used when they interviewed Agent Cooper in *Twin Peaks*?

Sad, isn't it? You'd think I'd have more useful things to do, wouldn't you?

Angela Peel-White
Bournemouth

You can't help spotting Macs. As the Moonlighting *case shows, they're a high fashion accessory...*

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KPTX	**Kai's Power Tools 2.1** (amazing filters for Photoshop)	£95.00
KPTC	**KPT Convolver** (adds power and ease to Photoshop)	£95.00
LIVP	**Live Picture** (real-time photographic retouching)	£795.00
PHSP	**PhotoShop 3.0** (the pros choice, now even better)	from £399.00

CAD & MODELLING

ADIM	**Dimensions** (Adobe's 3D extension for Illustrator)	£110.00
INFD	**Infini-D 2.6** (leading 3D modelling & rendering tool)	£445.00
KPTB	**KPT Bryce** (3D Skies and landscapes)	£95.00
MCAD	**MiniCad** (native professional 3D design & analysis)	£495.00
RYDD	**Ray Dream Designer** (3D design and modelling)	£235.00
STRVP	**StrataStudio Pro** (fast, native 3D modeller)	£895.00
TRBC	**TurboCAD** (powerful, budget CAD)	£79.00

DESKTOP PUBLISHING

ACRA	**Adobe Acrobat 2.0** (paperless publishing revolution)	from £149.00
CAxx	**Click Art** (excellent series of clip art)	from £32.00
CBxx	**Corel Images** (25 CDs of clip art quality photographs)	£129.00
FTCH	**Fetch** (superb image database system)	£85.00
HOMP	**Home Publisher** (budget DTP for "home users")	£59.00
3GIx	**Images with Impact** (4000 clip art images on CD ROM)	£299.00
PMKR	**PageMaker 5.0** (fabulous new version- 68k machines)	£415.00
PMKZ	**PageMaker 5.0** (fabulous new version-PowerMac only)	£425.00
QKXP	**Quark Xpress 3.3** (the professional's choice)	£599.00
QKXZ	**Quark Xpress 3.3** (Power Mac Native version)	£665.00
TYPY	**Typestry** (create 3D fonts with textures)	£159.00
TYSL	**TypeStyler** (manipulates PostScript fonts)	£99.00

FONTS

MNPF	**Monotype Font CD 4.0** (Monotype & Adobe Fonts, plus more!)	£49.00
ATM	**ATM 3.8** (smooths screen and print fonts)	£39.00
SATM	**Super ATM** (view documents without the fonts installed)	£85.00
FNTG	**Fontographer 4.1** (best professional font creator)	£345.00
ATR	**Type Reunion** (gives hierarchical font menus)	£45.00

PRINTERS

T8	**DataProducts T8** (600dpi A3 PostScript laser)	£1995.00
ECSA	**Epson Stylus 720** (brilliant quality colour inkjet)	£375.00
EP9A	**Epson EPL 9000** (600dpi A3 PostScript)	£1895.00
BLPEA	**GCC BLP Elite 600** (fast, PostScript, 4Mb, edge to edge)	£1095.00
ELXA	**GCC Elite XL608** (A3, 600dpi, edge to edge printing)	£2145.00
S600	**GCC SelectPress** (A3 600dpi, edge to edge)	£2995.00
HP3A	**HP DeskWriter 320** (portable colour inkjet)	£195.00
HP54	**HP DeskWriter 540** (superb new inkjet, Appletalk)	£245.00
HP66	**HP DeskWriter 660C** (colour and mono in one)	£345.00
LBWR	**LabelWriter II** (mini thermal printer produces labels)	£159.00
MWR2	**Texas MicroLaser** (600dpi A4 PostScript 2Mb RAM)	£645.00
MWR2	**Texas MicroWriter** (300dpi A4 PostScript laser)	£535.00
PWPR	**PowerPrint** (driver and cable for non-Apple printers)	£125.00

MONITORS

FR17T	**Formac 17" Trinitron Monitor**	£575.00
FR20T	**Formac 20" Trinitron Monitors**	£1295.00
RDCM	**Radius Colour Pivot** (unique tilt system)	£695.00
RD2V	**Radius IntelliColour 20" Monitor**	£1399.00
SN15	**Sony 15" Trinitron Monitor CPD 15SF1**	£355.00
SN17B	**Sony 17" Trinitron Monitor CPD 17SF1**	£635.00
THGx	**Thunder IV Video Cards**	from £1875.00

SCANNING

AFS2	**Agfa StudioScan II** (2400dpi, fast, the best)	£699.00
EPSB	**Epson GTX6500** (1200 dpi colour inc P'Shop & O'Page)	£465.00
SMII	**Microtek ScanMaker II** (great quality 600dpi)	£349.00
COOL	**Nikon CoolScan** (35mm slide scanner)	£1125.00
STAX	**Nikon AX1200** (fast, 1200dpi res A4 desktop scanner)	£1095.00
PPRT	**PaperPort** (mono desktop OCR and scanning)	£320.00
OMPG	**OmniPage 5.0** (OCR directly into applications)	£245.00

MULTIMEDIA

ELAS	**Elastic Reality** (seriously professional morphing)	£195.00
MRP2	**Morph 2.5** (morph from one QuickTime movie to another)	£79.00
MDRT	**MacroMind Director 4.0** (key multimedia tool)	£795.00
PRMR	**Premiere 4.0** (Adobe's brilliant QuickTime editor)	£399.00
TRNJ	**Transjammer** (100s of transitional effects for Premiere)	£89.00
VIDD	**Video Director** (edit your home videotapes)	£120.00
VDVx	**VideoVision** (Radius' superb video digitiser)	£1895.00

PC COMPATIBILITY

ACPC	**Access PC 3.0** (read/write PC floppys from your Mac)	£65.00
DSMT	**DOS Mounter Plus** (same as above)	£59.00
MLPT	**MacLink Pro** (best Mac/PC link with 100's translators)	£110.00
PCEX	**PC Exchange** (Apple's own brand software)	£49.00
SOFT	**Soft PC Universal** (DOS emulation on a Mac)	£75.00
SOFWN	**SoftWindows** (run Windows on a Power Mac)	£245.00

COMMUNICATIONS

4SIV	**4Sight FaxLight** (5 user network fax system)	from 445.00
OSTA	**ISDN Cards** (OST MacSnet)	£545.00
SPR1	**Sportster FaxModem** (14,400 baud, BABT approved)	£155.00
SPR3	**Sportster FaxModem** (28,800 baud, BABT approved)	£239.00
SPRC	**Supra FaxModem** (top quality, lowest priced 14.4 baud)	£95.00
SPRA	**Supra FaxModem** (top quality, lowest priced 28.8 baud)	£215.00
MICL	**Personal Microphone** (low cost but powerful comms)	£45.00
STCH	**Snatcher** (easy to use Internet file transfer software)	£35.00
TLGD	**TelePort Gold II** (14.4 modem from Global Village)	£135.00

POWERBOOK

CPU	**CPU** (excellent collection of PowerBook utilities)	£49.00
CPCC	**Car Power Adaptor** (plug in to the lighter)	£49.00
INSY	**Inline Sync** (syncs files between PowerBook & Mac)	£39.00
ROAD	**On The Road** (automatic deferred printing & faxing for P.B.s)	£79.00
CCPx	**PowerBook Carry Case** (Apple or third party)	from £19.00
PWPx	**PowerPort** (Global Village internal fax modems)	from £99.00
WIZP	**WizTools PowerBook** (excellent suite of utilities)	£55.00

NETWORKING

RWY5	**RunShare** (up to 5 times quicker file transfer)	five user £499.00
ANET	**Anet** (LocalTalk (AppleTalk) connector boxes)	£14.00
FLTK	**MNet** (PhoneNet connector boxes)	£12.00
QKML	**QuickMail 3.0 10 User** (powerful flexible E-Mail)	£369.00
TMBK	**Timbuktu Pro** (control Mac/PC screens over network)	£110.00
ASPR	**AsantePrint** (Ethernet to AppleTalk printer router)	£275.00
ETWx	**EtherWave** (daisychain Ethernet from Farallon)	£165.00
	Ethernet Cards (Asante, Shiva, Focus)	from £69.00
	Ethernet Tranceivers (Asante, Shiva, Focus)	from £36.00

HARDWARE

INPUT DEVICES

KBCE	**Extended Keyboard** (15 function keys, numeric pad)	£49.00
MHWR	**MacHandwriter** (character recognition A4 tablet)	from £265.00
MSAD	**Optical Mouse** (no ball to get dirty and stick!)	£69.00
QCKC	**QuickCam** (mono video camera for QuickTime)	£115.00
AGMP	**QuePad** (perfect for most arcade type games)	£39.00
AGMS	**QueStick II** (joystick for the control you've always wanted)	£59.00
TMADD	**Thinking Mouse** (4 button with software)	£65.00
TMADB	**Turbo Mouse** (top selling trackball)	£79.00
WCART	**Wacom ArtPad** (handy stylus and tablet)	£135.00
WCA4	**Wacom A4 UD1212** (professional)	£389.00

ACCELERATORS, CHIPS and BOARDS

PWL3	**Daystar Turbo 040** (68040, faster than a Quadra)	from £545.00
PP66	**Daystar Power Pro** (PowerPC accelerators)	from £1295.00
CPLx	**Math Co-Processor** (speed up your Classic II or LC)	£39.00
VR256	**256K VRAM Chips** (adds more colours)	£20.00
VR512	**512K VRAM Chips** (adds more colours)	£29.00

ACCESSORIES

	Cables (we have a wide range - please ring)	call
TNxx	**Toners/Ink Cartridges** (for laser & inkjet printers)	call
FLPx	**Floppy Disks** (pre formatted)	from £0.55
MSMT	**Mouse Mat, Wrist Rest, Dust Covers**	from £5.00
AGxx	**Anti Glare Screens** (eases eyestrain)	from £35.00
SESY	**Security Systems** (is your Mac vulnerable to theft?)	from £29.00

PROGRAMMING

FNTR	**Frontier** (first Finder level scripting system for the Mac)	£295.00
HYPC	**HyperCard 2.2** (new version, more power)	£95.00
CDWB	**Metrowerks Code Warrior Bronze** (680x0 compiler)	£65.00
CDWG	**Metrowerks Code Warrior Gold** (PowerMac compiler)	£275.00
ZCP	**Symantec C++** (best object oriented programming tool)	£279.00
SPCD	**SuperCard 2.0** (more powerful than HyperCard)	£299.00
THKC	**Think C 6.0** (the leading Mac app development tool)	£159.00
THKP	**Think Pascal 4.0** (excellent developer level compiler)	£139.00
FTBS	**FutureBasic** (far and away the best Basic for Mac)	£79.00

EDUCATION

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FNAR	**Fine Artist** (great fun paint program)	£35.00

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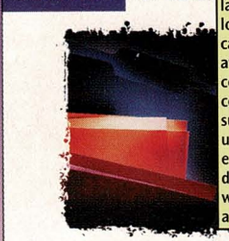

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KDDK	**Kid Desk** (desktop for kids, protects your own data)	£29.00
KDTM	**KidsTime** (5 learning programs for the 3 to 7 year old)	£29.00
KDMH	**KidsMath** (takes kids from counting to arithmetic)	£29.00
KDPX	**KidPix II** (wonderful paint program with sound effects)	£29.00
LPCK	**Launch Pad** (animated desktop, secures your files)	£25.00
NMBM	**NumberMaze** (award winning arithmetic tutor)	£39.00
PPAN	**Peter Pan** (the eternal favourite)	£27.00
RDMZ	**ReadingMaze** (letter recognition to sentences)	£35.00
SPLX	**Spelunx** (brilliant game-like learning environment)	£29.00
STBW	**Storybook Weaver** (build your own stories)	£23.00
GASE	**Swamp Gas Europe** (geography learning game)	£25.00
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VSNS	**Visions** (detailed astrological horoscopes and charts)	£29.00
CRWR	**Creative Writer** (DTP for kids)	£35.00
ETHT	**EarthQuest** (a new type of multi curricular learning)	£34.00
MGLB	**MacGlobe** (complete world info, maps. Essential)	£39.00
DCFM	**Decimals & Fractions Maze** (helps older kids)	£35.00
TYEN	**Typing Instructor** (good training from basics to touch)	£25.00
VYGR	**Voyager Astronomy** (fascinating desktop planetarium)	£105.00
WIWD	**Where in World is Carmen DeLuxe** (geography based)	£29.00

Special low Education prices are available on some products, including Microsoft, Claris and others, to authorized educational establishments with Educational Purchase Orders.

CD ROM

	GENERAL/GAMES	
CDRT	**CD ROM Toolkit** (speeds up CD access)	£59.00
7GCD	**7th Guest** (an incredible real time 3D adventure)	£35.00
HRDN	**A Hard Day's Night** (The Beatles Movie on CD)	£29.00
ALCD	**Ancient Lands** (multimedia history)	£39.00
BTCHC	**Battle Chess** (full colour animated Chess Game)	£35.00
B9CD	**Beethovens 9th** (the symphony and all about it)	£65.00
BMUG	**BMUG** (huge collection of public domain and shareware)	£29.00
JUMP	**David Bowie - Jump** (pop culture goes interactive)	£29.00
GTKCD	**Ferrari GP, Fokker Triplane, P51 Mustang Bundle**	£29.00
GODCD	**How God Makes God** (ingeneous spiritual guide)	£25.00
IRNB	**Iron Helix & Dark Seed** (fantastic space/adventure bundle)	£25.00
LYKC	**Legend of Kyrandia** (journey through magical lands)	£29.00
MRTCD	**Marathon** (the best selling game even better on CD)	£39.00
MYST	**MYST** (magical mystery adventure)	£35.00
PRNCD	**"Prince"** (music and multimedia from the great one)	£35.00
RTTZ	**Return to Zork** (multimedia adventure game)	£35.00
RBAS	**Rebel Assault** (Star Wars like game - brilliant)	£35.00
GNGB	**Resident's Gingerbread Man** (weird, but 5 mouse rated)	£29.00
THMP	**Theme Park** (create the best theme park ever!!)	£34.00
SPTCD	**This is Spinal Tap** (the movie and more on 2 CDs)	£25.00
EXPL	**Xplora** (Peter Gabriel's amazing multimedia CD)	£29.00
	EDUCATIONAL	
ARTT	**Arthur's Teacher Trouble** (interactive story book)	£29.00
ARTB	**Arthur's Birthday** (more Arthur)	£29.00
DINO	**Dinosaurs** (the "must have" CD of the year)	£45.00
GRME	**Grandma and Me** (delightful kids story)	£29.00
HHHS	**Harry and the Haunted House** (the new best seller)	£29.00
KDPCD	**KidPix Studio** (KidPix plus animation)	£35.00
LFCD	**Learn to Speak French** (aah... learn to speak French)	£115.00
MWCD	**Math Workshop** (math tutoring 5-12 age group)	£34.00
PAWCD	**P.A.W.S.** (hysterical dog's eye view of the world)	£25.00
PTWL	**Peter and the Wolf** (interactive fairy tale)	£29.00
RUFF	**Ruff's Bone** (adventures with Ruff the dog)	£29.00
TRTH	**Tortoise and the Hare** (the epic race)	£29.00
JMAN	**The Journeyman Project** (amazing 3D adventure)	£32.00
THUM	**Thumbelina** (interactive fairy tale)	£29.00
WLJCD	**Wallobee Jack/Lost Leonardo** (interactive kids cartoon)	£19.00
	REFERENCE	
3DAT	**3D Atlas** (simply wonderful)	£49.00
MAGCD	**Art Gallery** (Microsoft's tour of the National)	£39.00
BKSCD	**Book Shelf** (superb CD ROM for everyday reference needs)	£75.00
CINI	**Cinemania 95** (19000 movie reviews and more)	£39.00
DSTCD	**Distant Suns** (astronomy based CD)	£65.00
DCLW	**Dictionary of the Living World** (award winning)	£29.00
NCRT	**Encarta '95** (fantastic multimedia encyclopedia)	£75.00
RPFCD	**Ephemeral Films** (fascinating US archive of films)	£23.00
FALCD	**For All Mankind** (NASA archive videos from space)	£25.00

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HLWCD	**Halliwells** (the famous film encyclopaedia on CD)	£25.00
HCWCD	**How Computers Work** (excellent guide to technology)	£40.00
JPTR	**Jupiter** (photos of the comet impact)	£15.00
MCBT	**Macbeth** (the Scottish Play)	£65.00
MICD	**Musical Instruments** (Microsoft's excellent entry)	£39.00
OEDCD	**Oxford English Dictionary** (the whole thing on CD ROM)	£425.00
REDCD	**Red Shift** (superb astronomy program)	£49.00
SHCD	**Shakespeare Complete Works** (at your fingertips)	£19.00
SBPCD	**Small Blue Planet** (pictures, geography of the planet)	£49.00
STTM	**Star Trek Interactive Tech Manual** (tour de Enterprise)	£29.00
TLFA	**Time/Life Astrology** (astrology primer)	£19.00
WRPA	**Warplanes** (an interactive history)	£45.00
WCSCD	**World Cup Soccer** (USA 94 and archives since 1930)	£29.00

MUSIC

BMTL	**EZ Starter Kit** (MIDI interface, EZ Vision, book)	£175.00
PRMC	**Practica Musica** (teaches music theory and ear training)	£75.00
SONG	**SongWorks** (interactive music composition)	£65.00
STDI	**Super Studio Session** (8 voice composer and player)	£69.00
MDIN	**MIDI Interface**	£59.00

UTILITIES & DA's

	PRODUCTIVITY ENHANCERS, FILE & DISK MANAGEMENT	
EASE	**At Ease** (secure Finder replacement)	£35.00
INVU	**Conflict Catcher 3.0** (INIT manager and more)	£55.00
CDU	**CDU** (excellent collection of Desktop utilities)	£49.00
NDBP	**DiskDoubler Pro** (DiskDoubler,AutoDoubler,CopyDoubler)	£59.00
EXPO	**Exposure Pro** (screen dump utility with paint tools)	£82.00
FTF	**First Things First** (alarms, reminders, to do's)	£45.00
HDTKP	**Hard Disk Toolkit** (Personal Edition)	£59.00
HDTK	**Hard Disk Toolkit** (the best formatter and checker)	£125.00
INPK	**InitPicker 3.0** (choose to use or disable your startup Inits)	£39.00
MCTA	**MacTools Pro 4.0** (disk safety and protection utility)	£79.00
NUTD	**Now Up-To-Date** (calendar and reminder system)	£65.00
NUM	**Norton Utilities 3.1** (best selling utilities package)	£79.00
NOWU	**Now Utilities 5.0** (suite of essential utilities)	£65.00
POPF	**PopUpFolder** (view folder contents with submenus)	£30.00
QCKY	**QuicKeys 3.1** (macro maker, time saver utility)	£85.00
QCDX	**QuickDex II** (lightning fast DA database, essential)	£32.00
RAMD	**RAMDoubler** (actually doubles your available RAM!)	£55.00
SFDL	**Stuffit DeLuxe** (famous file compression program)	£59.00
SUIT	**Suitcase 2.14** (manage your font menus)	£45.00
WNWT	**WindoWatch** (logs time usage of windows)	£85.00
	SECURITY	
DKGD	**DiskGuard** (control access to your hard drive)	£69.00
EMPW1	**Empower I** (file & data security)	£120.00
FLGD	**FileGuard** (serious protection for specific files)	£145.00
MPR1	**MacPrefect** (secures most aspects of the Finder)	£30.00
	SCREEN SAVERS	
AFDK	**After Dark 3.0** (famous screen saver with many modules)	£25.00
DSNY	**Disney Screen Saver** (simply magical)	£27.00
STAB	**Ultimate Star Trek** (screen saver and posters bundle)	£39.00
FLTS	**The Flintstones** (cartoon, movie and now...)	£19.00
LTSS	**Looney Tunes** (famous cartoon screensaver)	£25.00
SMSN	**The Simpsons** (irreverent humour)	£25.00
DRTY	**Underware** (humorous screen saver)	£25.00
	BACKUP & VIRUS PROTECTION	
OPDT	**DeskTape** (treats DAT as if it were a 2Gb drive)	£249.00
PRSB	**Personal Backup** (best value backup on the market)	£35.00
REDX	**Redux Deluxe 2.51** (powerful floppy backup)	£49.00
RTSP	**Retrospect 2.1i** (most sophisticated archival backup) from	£145.00
SAM	**SAM 4.0** (Symantec's anti virus utility)	£49.00
VIRX	**Virex 5.0** (best virus tracer & eradicator of all)	£59.00

ENTERTAINMENT

	ARCADE	
ASTR	✔**Astro Chase** (space shoot-em-up)	£29.00
MBSL	✔**Best Sellers Pack** (Hellcats, Spectre, SuperTetris)	£32.00
CRQ2	✔Crystal Quest 2 (Britain's favourite game)	£22.00
CRYC	✔Crystal Crazy (sequel to Britain's favourite game)	£34.00
FSHB	✔**Flashback** (Nintendo like adventure shoot-em-up)	£25.00
FOTF	➢Fury of the Furries (Nintendo style platform game)	£25.00
LEM3	✔**Lemmings/Oh No! More Lemmings Bundle**	£22.00
MRTH	➢Marathon (prepare to meet thy "Doom")	£39.00
PGLG	➢PegLeg (totally addictive invaders style game)	£23.00
PROP2	✔Prince of Persia II (more and better, can you resist?)	£29.00
SNOV	➢Sensory Overload ("Doom" for the Mac)	£35.00
	SIMULATIONS	
A10A	✔**A10 Attack** (the best flight sim around)	£39.00
CYAC	➢Chuck Yeager's Air Combat (fly with Chuck)	£34.00
CRBL	✔Crystal Caliburn (classic pinball game)	£32.00
F18H	➢F/A18 Hornet (from the creators of Hellcats)	£49.00
FLYN	➢Flying Nightmares (strategy and flight sim in one)	£22.00
FLSM	✔Microsoft Flight Simulator (serious, realistic, accurate)	£35.00
OOTS	➢Out of the Sun (dogfight in three WWII battles)	£22.00
PWDK	✔Pathways into Darkness (kill the evil maze monsters)	£39.00
PGAG2	✔PGA Golf II (far and away the best Golf game)	£29.00
PLPG	✔Links Pro Golf (so realistic you'll think you're there!!)	£34.00
PPL2	✔Populous II (want to play God?)	£29.00
SIMC2	✔Sim City 2000 (design and run your own city)	£29.00
SIMT	✔Sim Tower (control and manage a tower block)	£29.00
SYND	✔Syndicate/Populous I (control the world)	£34.00
SIMC	✔Sim Classics (Sim Life, Ant and City in one bundle)	£29.00
THME	✔Theme Park (create the best theme park ever!!)	£34.00

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BUNDLES ARE IN BLUE

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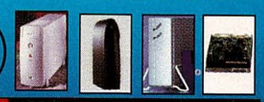

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230Mb Optical Drive	£715.00
D2 88Mb Syquest Drive	£265.00
D2 200Mb Syquest Drive	£399.00
2Gb DAT Drive	£865.00
44Mb Syquest Cartridge	£32.00
88Mb Syquest Cartridge	£36.00
200Mb Syquest Cartridge	£55.00
128Mb Optical Cartridge	£25.00
230Mb Optical Cartridge	£35.00
NEW...NEW...NEW	
Reno Portable CD ROM Drive	£245.00
Iomega ZIP Drive	£145.00

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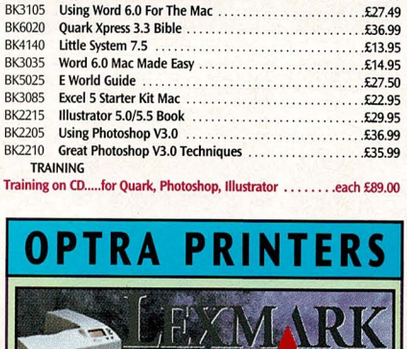

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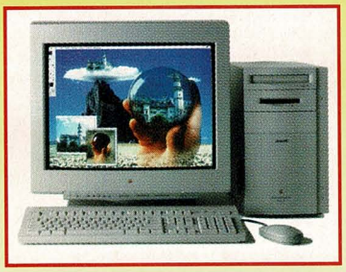

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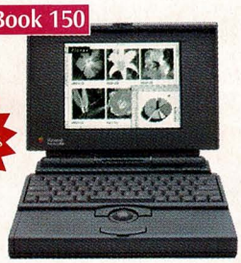

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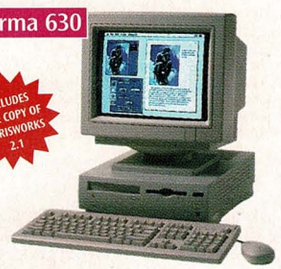

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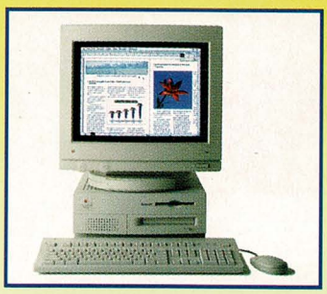

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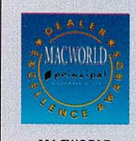

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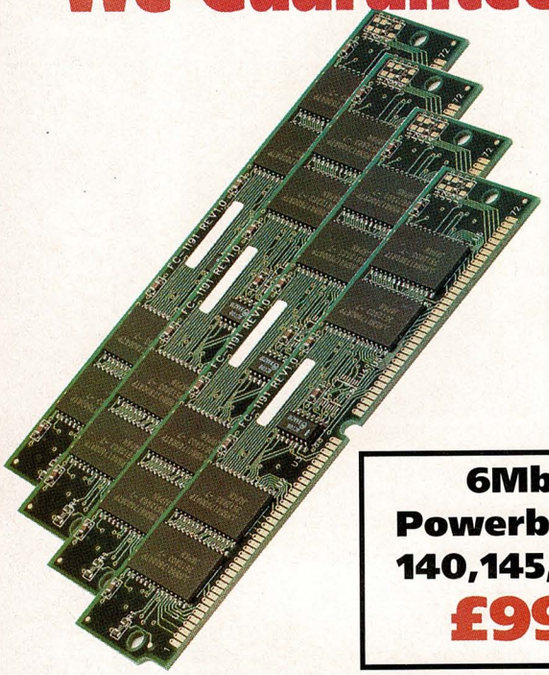

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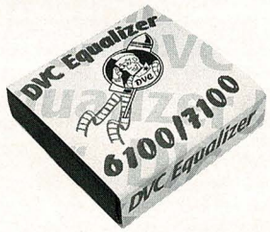

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IT'S ALIVE!

How do the professionals do it? Discover one of the most dynamic and diverse aspects of the Mac – animation.

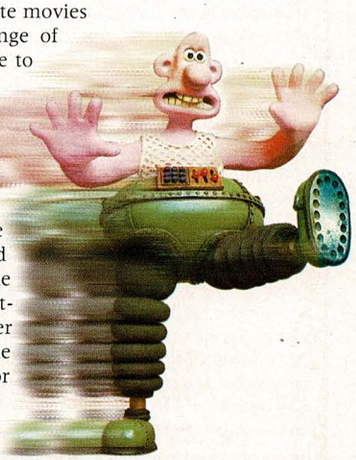
Remember the nuclear explosion in *Terminator 2: Judgment Day*? That was rendered and animated on a Mac. So was the *Asterix* movie a few years ago. So were the title opening and 'stellar cartography' sequence in *Star Trek: Generations*. The Mac has always been a favourite machine for professional graphics work, but now it's being used more and more for cinema and TV animation as well.

It's all part of the increasing use of computers in animation. They can automate many of the most tedious tasks involved in the process and cope with effects of daunting complexity, as well as generate results that are more polished and sophisticated than traditional animation methods could achieve without prohibitively huge investments of time and money. For evidence, just look at the breath-taking realism of the Raptors in *Jurassic Park* or the amazing shape-shifting of the 'T2' in *Terminator 2*.

Of course, that wasn't done on a desktop Mac – calculating such complicated transformations and rendering them still requires more processing power than even a PowerMac can deliver. But similar morphing effects in *SeaQuest DSV* and *Babylon 5* were generated using *Elastic Reality* (see page 52), and you might have seen the dancing tools on *Sesame Street*, modelled and animated using *Playmation*. The increasingly sophisticated animation in games like *Myst*, on other machines as well as the Mac, is routinely created on Mac-based systems. And even animators using the most traditional and most labour-intensive techniques have begun using Macs at key stages of the process, like Aardman Animations, who use Macs to storyboard and test-animate their award-winning clay-model-based films.

In this massive 14-page feature, we take a close look at the state of the art in Mac animation – from how they create the animation you see *on* your Mac in games and multimedia, to how film and TV animators like Aardman create movies *using* Macs. Then we test a range of animation programs you can use to produce complete animated films, for education, for specific 'morphing' effects, to fly through computer-generated landscapes, and much more. Our 3D graphics series concludes with a guide to 3D animation techniques, and we've even brought you some specially-selected animation software on the MACFORMAT cover disk and usable demos on the CD-ROM so you can try it all for yourself as well.

So don't just sit there – turn the page and get moving!



The secrets of Mac animation
How animation works, and how it's done in Mac games.
page 44

Wallace and Gromit meet the Mac?
How award-winning Aardman Animations use Macs.
page 46

ProMotion and Animation Works
Can these animation programs turn you into a desktop Disney?
page 48

Amazing Animation
An 'educational' program designed to make animation as easy as child's play!
page 50

Morph vs Elastic Reality
Which is the top program for creating 'morphing' effects?
page 52

More animation programs
From Scenery Animator to FlipBook Creator, and more...
page 54

Tips from a pro
PAWS animator Alan Snow shares his top ten trade secrets with MACFORMAT!
page 56

Do it yourself!
A quick guide to what you can do with this issue's cover disk programs...
page 56

3D animation
Our final 3D tutorial shows how you can make your 3D worlds spring to life!
page 58

Move it!

No, Wallace and Gromit weren't actually animated on a Mac. But Macs have something to offer at every stage of the animation process. Alex Summersby explains...

The basics of animation haven't really changed much since the early 1900s, when pioneers like Winsor McCay dazzled audiences with the antics of crudely-animated dinosaurs. What is changing is the mechanics. Instead of pencil and paper, or paint and celluloid film, animators today are increasingly likely to turn to computers – and, especially in smaller cash-strapped studios, that means Macs. Here's a quick guide to the key processes of animation and the areas where Macs are starting to make a difference to the animator's demanding task.

Storyboards

Like any film, an animation is planned in detail in 'storyboard' form – like a comic strip, often on slips of paper which can be pinned up and rearranged if necessary. Today, storyboard drawings can be scanned in, or even created on a Mac, and rearranging them becomes as simple as cut-and-paste. Complex scenes can be altered using any image-editing software – Aardman found this a godsend when planning their frenetic Crunchie advert, with so much going on at once. Even better, storyboards can be brought to life, generating a 'rough cut' animation called an 'animatic' which gives you a much better idea of what the result might look like, saving wasted effort and money.

Backgrounds

Each frame of an animated film is a separate picture. To save having to re-draw every single frame in full, 'actors' and 'props' are drawn on separate transparent 'cels' (so called because they used to be painted on celluloid), which can be moved – and mixed-and-matched – independently. This also means backgrounds can be gorgeous fully-painted (or fully-rendered) scenes created by specialised artists. Increasingly, these artists are using Macs too, taking advantage of landscape-generating programs such as *KPT Bryce*, *Vistapro* and *Scenery Animator* – the last two of which can even create 'fly-throughs', so the action can move around your 'set' automatically.

Key frames

Even if they're animating only the foreground figures, animators still have a lot of drawing to do. To make it a bit more manageable, TV cartoons these days use only 12 separate drawings for each second of film, each 'held' or shot twice – but even then you're still looking at over 700 frames for each minute. In the 1940s, the animator came to draw only the key phases of every movement – normally, the start and end points – and assistants called 'in-betweeners' filled in all the intermediate steps. Today, Mac animation packages can do the 'tweening' for you, automatically calculating the right number of intermediate frames with precisely the right increment of movement in each!

Shortcuts

To cut down the work, in '60s TV cartoons the basic figure wasn't redrawn, only the moving parts – fine for the Flintstones, but not very naturalistic: when you raise your arm, for instance, you don't move only that arm – your whole body shifts to help you keep your balance. Some Mac animation programs reproduce this using 'Inverse Kinematics', a more advanced form of 'tweening': to put it simply, you can move a fingertip and the program calculates how the arm, body and shoulder should follow realistically. Brilliant! They can also emulate a gadget called a 'rotoscope', a kind of enlarger which enables you to trace films of real people frame by frame for extra realism.

Checking

To compare successive drawings, animators used to use tracing paper or 'onion skin'. All Mac animation programs emulate this, and also have the option to simply copy a drawing and then edit it. To check their work, animators used to flip back and forth between drawings, but now they can test-animate an unfinished sequence – before, this was done only at a late stage, because it was just as costly and time-consuming to film pencil roughs as to film the finished result! Many programs add auto-rotation of objects and auto-zoom, and even the capability to plot a movement in rough outline along a path or curve which you can then edit, and the movement will follow suit.

Colour and effects

Cels used to be coloured with opaque paints. Now, colours can be custom-defined, applied or removed with precision, and won't vary in colour or density. Special-effects packages like *After Effects*, as well as animation programs, offer fading and masking, automatically-generated motion blur, wipes and dissolves, and much more. They can emulate sophisticated photographic techniques including the multi-plane camera, pan and zoom, and add digital compositing, anti-aliasing and auto stretch and squash. Amazingly detailed textures can be twisted and rotated in perfect perspective, with completely convincing shading – like Aladdin's carpet, which was entirely computer-generated.

Stop-motion

With 'stop-motion' animation – like Wallace and Gromit, Morph, or Cosgrove Hall's wonderful Noddy – the process involves not drawing but building sets and clay models, to be shot one frame at a time. The animator painstakingly moves each figure a tiny bit for each frame, so progress is slow – as little as four seconds in the can each day is good. But with 3D software, real models aren't needed, just 3D images within a Mac-generated environment – and the animator can even leave the hard work to the computer. Load start and end images created in any 3D package, and *Elastic Reality* can do the tweening for you; *Animation Master* can do it all, from modelling to moving.

MORE THAN MEETS THE EYE...

How does animation *really* work? Alex Summersby gets technical...

The key to animation is a physical phenomenon called 'persistence of vision'. This exists because the light receptors in the human retina, a bit like a photographer's flash gun, have to 'recharge' for a tiny fraction of a second after firing. This means that they can't send an updated message to the brain more than about 20 times a second. As a result, every image you see lingers or 'persists' for at least a 20th of a second – longer if it's a very intense image, like a bright light, or if you've overloaded the receptors by staring at an unchanging image for a good minute or so...

Persistence of vision means that if you present the eye with a new image before the previous one has completely faded, the brain blends or overlaps the two. If the two images are just slightly different, what you perceive is the illusion of continuous movement between them.

This is what happens in the cinema, where the familiar film-strip of separate frames is projected at about 25 frames a second – though in fact you can get the illusion of movement at much lower speeds. Up until the 1930s, films ran at only about 16 frames a second, and in practice as little as 10 or 12 frames a second can do the trick. Even if you just flip through a wad of drawings on paper with your thumb, you'll get an impression of movement, though not very smooth or realistic.

Your Mac's screen display is updated around 30 times a second, so it's certainly fast enough to play back 'full-motion' animation. The only catch is that if you use a separate image for each 'frame', the necessary data needs huge amounts of disk space. Take a very modest display of 640 x 480 pixels with just 256 colours: even at a basic 12 frames per second, *one second* of playback needs 3,686,400 bytes or 3Mb. Current SCSI devices like hard disks and CD-ROM drives can just about cope with this sort of playback speed, but even a CD-ROM couldn't store more than about three minutes' worth of pictures – and what about higher resolutions or more colours?

These limitations are why Mac animators make use of the same shortcuts as traditional animation – static backgrounds with only foreground characters moving, or compression systems that save only the *differences* between successive frames rather than the whole frames. The results can be pretty impressive – check out games such as *Space Ace* and *Dragon's Lair* (reviewed this issue on page 121), which are essentially cartoons you can interact with, or the video sequences in such multimedia titles as *Circus* (see page 94) and games such as *Night Trap* (page 121) and *The Daedalus Encounter* (next issue).

Move fast!

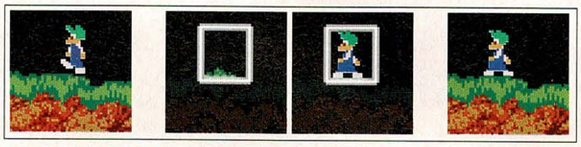
Modern Mac games contain some striking animation, but how is it done? Programmer Alex Metcalf explains the tricks of the trade behind games like *Lemmings* and *Marathon*.

When you're levelling a room-full of aliens in *Marathon* with your recently acquired rocket launcher, or when 80 lemmings are running madly around your screen, you're probably not thinking about how your Mac is bringing all this up on your monitor. However, some of the most interesting Mac animation techniques are in games, and thousands of developers continually strive to make game graphics and animation more impressive for the avid game player.

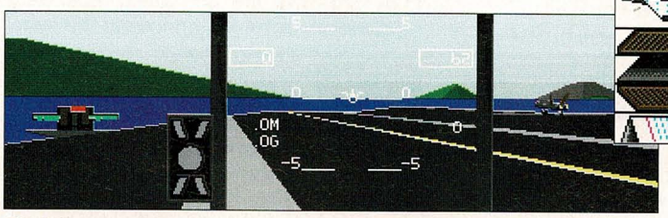
So what's going on behind the scenes? Let's start with a few basic techniques used in almost all Mac games these days.

The basic approach for any animation is to continuously move a graphic a small amount in some direction. On the screen, this would involve erasing its old position and drawing it in the new position. However, this results in flickering, since the screen gets 'refreshed' before you can get both tasks done.

To combat this, most games use special areas of memory that act like screens, known as 'offscreen areas' or 'offscreen worlds'. All the hidden erasing and drawing takes place in these areas before a final image (with all the graphics moved to their new positions) is copied to the 'real' screen. Since the real screen only changes once, you avoid the flicker and get smooth animation.



A lovable lemming gets moved from its old position (far left) to a new position (far right). The two middle steps show the work being done offscreen.



F/A-18 Hornet constructs all the graphics, from the rolling hills to the aircraft carrier, using polygons. The shapes can be drawn quickly, so the whole screen can be changed fast enough to provide smooth animation.

So how do most games use graphics? *Marathon*, the MACFORMAT-Classic-rated shoot-'em-up (see issue 23 for the demo and review), gives you complete control over where you go and what you look at. Obviously the game can't store a view of all the objects and walls from every angle – this would make it impossibly huge. Instead, textures are applied to objects with the correct perspective on the fly, and the change of view after every movement is computed as you move.

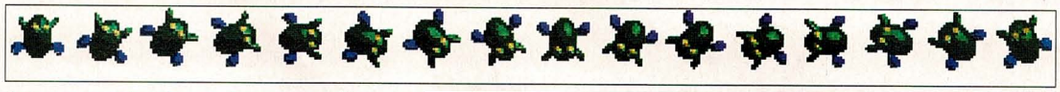
Because of the complexity of this approach to animation, it's not unusual to have one or more programmers working full time on the 'graphics engine', and it's one of the most interesting areas of game animation development these days.

Marathon is unlike most current Mac games in that it redraws the whole playing area for every frame of animation. This means that slower Macs can't keep up unless you set the game to play in a small area or with less detail. But there are a number of games that use the whole screen, and they achieve smooth animation by only updating the areas that change (such as when a lemming walks along in *Lemmings*). MACFORMAT has got its hands on the latest Ambrosia Software game, *Swoop*, and this is an excellent example of a game using this technique. (You can see it for yourself next month!)

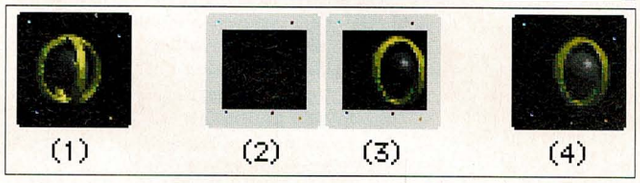
Swoop sometimes has 50 objects moving around, and each one is prepared 'offscreen' to provide smooth animation. If there is an object in one position on the real screen, there are three standard steps required to move it smoothly. First, an area of background enclosing the old and new object position is drawn offscreen. Next, the object is drawn over this area in its new position. Finally, this area is copied to the real screen, resulting in what you see as one change. Mac arcade games often use this technique, since you can have objects moving over a background picture without too much processor time spent on redrawing the screen.

Some games use more specialised animation and drawing techniques. For example, *F/A-18 Hornet* constructs almost everything you see using polygons. There isn't an actual picture of an aircraft carrier stored in the game, just a description of how it can be drawn with a number of different shapes. The game redraws the whole screen during every single frame of the animation, so normal playing speed on slower Macs is made possible by adjusting, for example, the detail of the scenery.

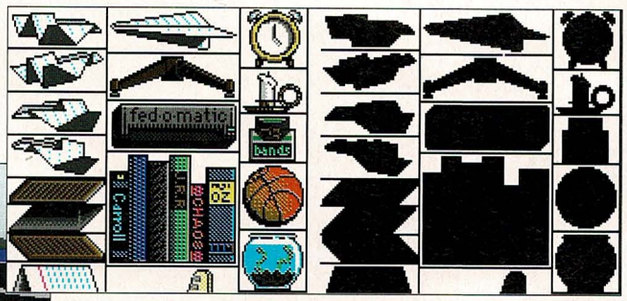
A completely different animation technique, usually known as 'palette animation', is adopted in *Apeiron*, which has an opening screen continuously changing its colour. If you imagine every pixel in a picture as having a colour number associated with it, then you can animate the picture by continuously changing the colour that each number points to.



Some games, such as *Swoop*, store every possible movement of an object. This makes the graphics quicker to draw but can be impractical for games with large graphics or many possible views of an object.

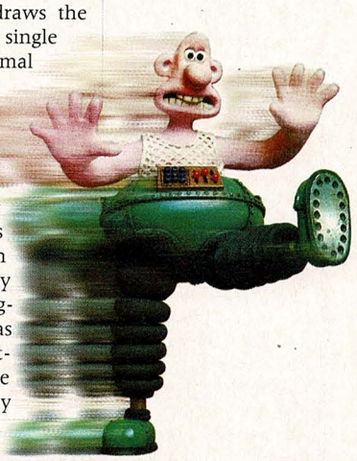


Swoop has a special spinning cage giving mystery bonuses. As you play, you first see the cage in its 'old' position (1). An area containing old and new positions is blacked out (2), the cage is drawn in its new position (3), and then copied to the screen (4) to show the movement. Erasing the old position as the new position is drawn avoids any flickering.



Here are just a few of the graphics from *Glider*, showing the resources used for creating animation on screen. The black images to the right are the masks, which are like templates. They're used for drawing the graphics over the backgrounds without leaving white areas round the edges.

The opening title of *Apeiron* continuously changes colour through the use of a technique called 'palette animation'. Very impressive to watch, but it takes time for a programmer to set up.



PRINT IT!

What do you do with your animation when it's finished? You can play it back on your Mac, of course, or print each frame out onto a separate flip-book sheet (see page 55), but to save it onto film or video, unless you have an AV Mac, you usually need extra kit such as a video output card. For details, see our desktop video feature in MACFORMAT 21. If you missed that issue, you can order a copy on page 116.

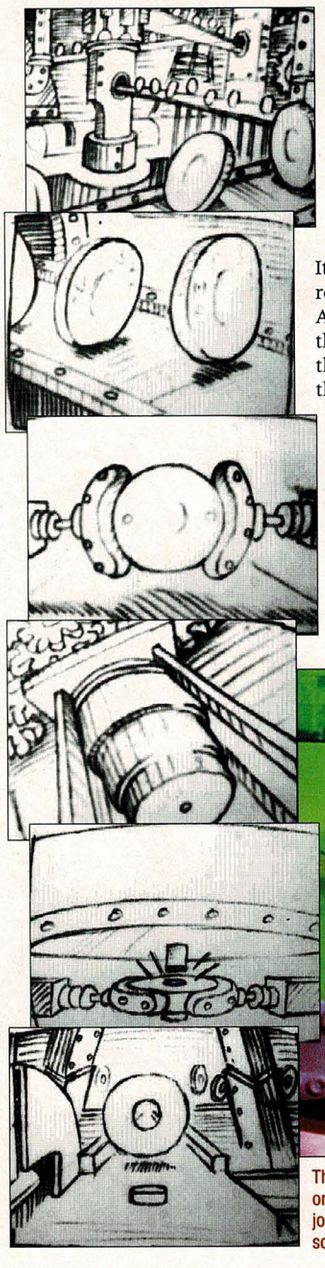
Inside Aardman

What use are computers when you're filming a hand-made world? Richard Hill reports on how the Mac plays a vital part in the work of Britain's best-known animation studio.

The TV and print aspects of this energy-saving campaign were co-ordinated with the help of the Mac.

We all love Aardman Animations. From *The Amazing Adventures of Morph* to our cover stars Wallace and Gromit, the studio has created a distinctive style that's become massively popular with the British public. But Aardman are behind a lot more of the animation you see on TV than you might think.

The company have been based in Bristol since 1976. The unassuming exterior of their building conceals winding passageways full of the wonderful mess that says 'creators at work'.



While work continues on the next Wallace and Gromit extravaganza, *A Close Shave*, the rest of the studio is busy on other projects – many of which are for the advertising industry. It's these short, sharp projects that reveal the great range of styles Aardman are capable of – 'we think humour and character are the hallmarks of Aardman,' says the company's Liz Keynes.

'At any point there's probably about eight or ten commercials at different stages of production,' Keynes continues. 'The scale of them varies tremendously – they can be anything from one simple set with one animator, to the Crunchie set, which took up an entire studio.'

The Crunchie commercial is instantly recognisable as Aardman, and it's a lavish few seconds of television. With chocolate people taking a ride on a honeycomb rollercoaster, the sequence is bursting with energy. Yet all the movement was generated the old-fashioned way – by hand. Models are created, placed in sets and posed for the camera – at which point a frame of film is taken. Then the models are slightly adjusted for the next frame. It takes 25 repetitions of this meticulous procedure to make just one second of the finished 35mm film.

Behind the animators who perform this ritual are teams of designers and modelmakers, who make the figures and backdrops for the films. Keynes says, 'The models are Plasticine – as they always have been – but they're quite complex nowadays. They can have metal armatures, which might have ball-and-socket joints depending on the requirements. If they need to move, we use Plasticine, but if they don't, we can use foam latex.'

WIN
Ten Wallace & Gromit videos!
See page 137

Man and machine

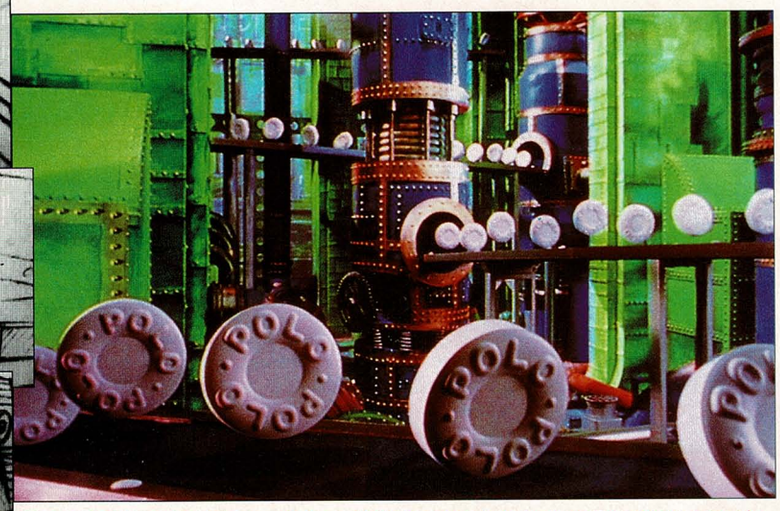
You might think that there's no place for computers in a process that relies so heavily on craftsmanship, but in fact the Mac and other machines form an essential part of Aardman's working day. Computers are found in every corner, among the latex and pots of paint.

The Mac has a role to play in many parts of the animation process. The commercials Aardman make are commissioned by an advertising agency, which has arrived with an idea at the request of one of its own clients – the company that wants to sell its product. 'We'll initially get a basic idea from an agency,' says Keynes. 'They can vary in terms of how detailed they are.'

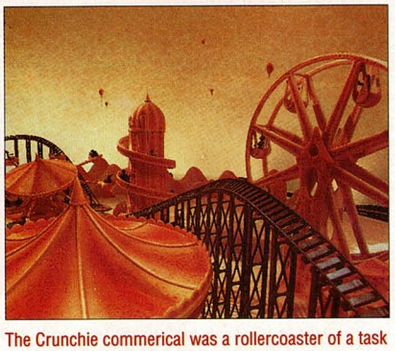
Aardman have to smooth the edges of this idea, making sure it's technically possible to make, designing characters, setting into motion the construction of the models they'll need and using their experience to suggest improvements. It's essential that the ad agency and their clients are involved throughout this stage, so that expensive changes during filming are avoided. The client can be anywhere in the world, so life is made even more complicated – but with the Mac, everything can be agreed in days, rather than the weeks it used to take.

The driving force behind Aardman's adoption of new technology is Glenn Hall: 'Our artists draw up the idea in a storyboard. The supervising director then deals with the issues of animation timing and agrees the outline of how the project will go with the client (the advertising agency), who in turn will agree it with the end client (the company).

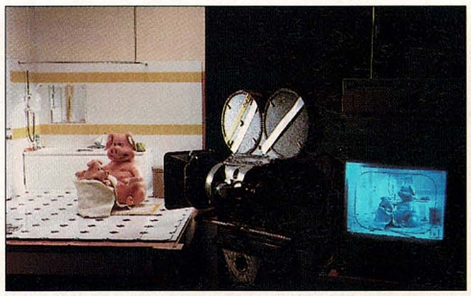
'Then the process comes back to us, and the voices are recorded. We then edit that and pump it into the Mac, so it be-



The secret of how Polo mints are made is revealed in this advert from Aardman. The animatic was made on a Mac so the animators could see how the timing worked, which was essential for such a challenging job. Liz Keynes remarks, 'The animation is essentially inanimate – there's a mechanical set, and Polos on screen. And yet they've retained all the character we think is the hallmark of Aardman.'



The Crunchie commerical was a rollercoaster of a task – the Mac enabled Aardman to stay on track.



The studios at Aardman are constantly busy, with up to ten projects being worked on at once.

Frank from the *Creature Comforts* commercial is an example of Aardman's knowing touch with characters.

comes the baseline upon which we hang the pictures. Peter Lord oversees the character design; in parallel with this, the set designer is making sets, and our model-makers are taking the character ideas and building models based on the drawings.

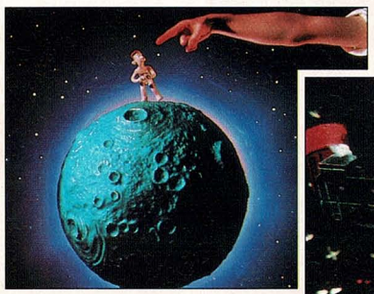
'This is all constantly being modified in conjunction with the client and the other creators, all going round in a circle. We take video snapshots of our models and e-mail them across the Internet to our clients as *Photoshop* files – everyone's got *Photoshop*, so for us it's the best format.'

The Mac is used to create one of the most crucial parts of the information that's being relayed around – the animatic. This is a crude animation using the storyboard drawings and the recorded soundtrack. It's the first time anyone gets a proper idea of how the film is going to turn out and whether the all-important timing works.

The storyboard pictures are scanned into the Mac and the animatic is edited together by Mark Brierley, using Adobe's *Premiere 4.0* video software and a Radius VideoVision board. Hall says, 'This has revolutionised the process, because in the past we used single-frame tape-based systems. They did broadly the same thing but didn't allow you to align the picture with the sound. It's a very quick guide. We can send this to the client so he can see how the work is taking shape.'

The pictures sent across the Internet are good enough for reference and they get to their destination quickly. 'Concurrently with this,' says Hall, 'proper stills and videos are being couriered across – but they can be 36 hours behind.'

Once the storyboard and models have been approved, the filming can begin. The animators use Amigas and PCs to give themselves instant playback of their filming, so they can see how things are progressing. But with complicated films like the Crunchie commerical, the Mac is also used. What you see on screen is actually filmed as separate pieces, which are brought together later. With the Mac, Aardman can assemble a rough version of the composition – making adjustments before all the pieces of film go to London for the finishing process. The film is often initally edited on Macs with Avid video equipment, before its final composition on broadcast quality computers.

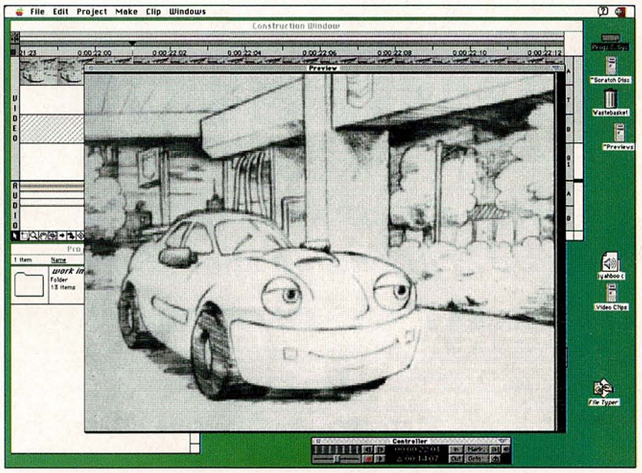


Aardman also create animation just because they like it – as in the award-winning short film *Adam*.

And projects like the famous Peter Gabriel video *Sledgehammer* break new ground in animation.

New directions

The Mac's starting to play different – but equally important – parts in Aardman's work, says Keynes. Dinosaurs star in a Government campaign to encourage energy conservation, which is appearing on TV and in magazines and newspapers.



In this advert for an American oil firm, the Mac-made animatic ensured that the expressions coincide with the car's speech.

Naturally Aardman are responsible for the TV commercials, but with the Mac, their original designs can be used as the reference point for the press campaign too. Companies wishing to use the characters are sent images created on the Mac for their own use. Keynes says that by using Aardman images in print as well as on the TV, the Government has maintained 'the tight control the campaign needs to keep it coherent... You can undermine a good TV campaign through poor print representation. It's been good for us too – the distinction between making the characters work in print and on TV has got quite blurred at times.'

Aardman characters could soon be appearing on a computer near you. 'We're involved with a number of projects – from educational programs and computer games software, through to interactive programs,' says Keynes.

Aardman's relationship with technology is more harmonious than Wallace's troubles in *The Wrong Trousers* might suggest. The firm are constantly surprised by the uses to which they can apply the Mac. Everyone who uses it comes up with something new, says Keynes. 'It's still quite a personal thing in many ways. All the people who've had the opportunity to work with a Mac – in whatever part of the process – have found it beneficial. It's been a very useful tool.' **MF**

MEET MORPH

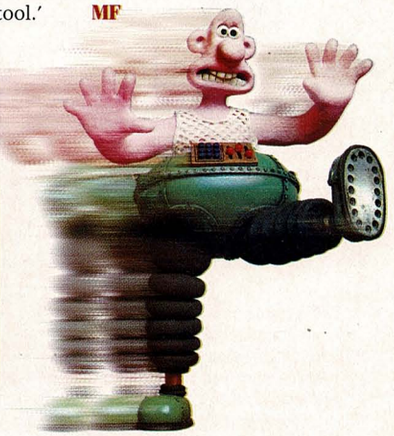
Aardman's most enduring character is Morph, who first appeared on our screens in 1976. He can still be seen on the BBC1 series *Smart*.

AARDMAN ORIGIN

Aardman Animations were formed in 1972 by David Sproxton and Peter Lord. Aardman was the name of a character in the first film the pair sold to the BBC.

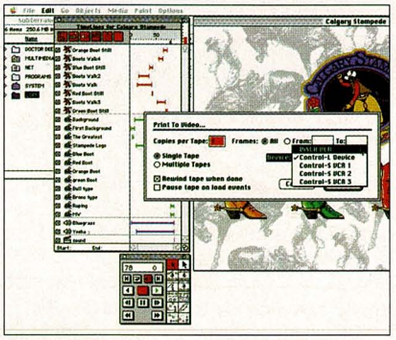
There may be computers all over Aardman, but some things are still best done by hand. Here the animator's posing his models for the next frame.

The end result of his painstaking work is a rich and convincing world – the shame is that as it's a Weetabix ad it's only on screen for seconds.



Animated discussion

Two programs are vying for the attention of the budding Mac animator. *PROmotion* and *Animation Works* offer solutions but Marcus Dyson asks: 'Does either offer an easy answer?'



A sign of *PROmotions's* professional pedigree (apart from its name) is the ability to output animations directly to professional quality video machines.

RE-ANIMATOR

Chuck Jones is the legendary animator of Bugs Bunny and Road Runner for Warner Brothers, and the *Peter and the Wolf* CD reviewed in MACFORMAT 22. His services are so highly regarded by Warners that they called him out of retirement in his 80s with a contract that tied him to them for 20 years.

There's nothing quite like creating your first animation. Sure, drawing a picture is nice, and looking at your first 3D render is quite stunning, but combining motion with either of these experiences takes it to a whole new level. So imagine a program that can help you do away with all the more tedious aspects of frame by frame animating. Now imagine two such programs... and that's what I have sat in front of me now. Let's see if either of them can turn me into the new Chuck Jones!

Both *PROmotion* (*PM* from now on) and *Animation Works* (*AW*) are aimed at the animation of two-dimensional images. 3D animating uses a totally different set of principles, and is best handled by a dedicated 3D rendering package like *Infini-D* or *StrataStudio* (see page 58).

These programs both use a very similar user interface, based around a display window to show what's actually going on with the animation, together with a video style control panel to control viewing, plus windows in order to view and edit your 'actors', 'props' and backgrounds.

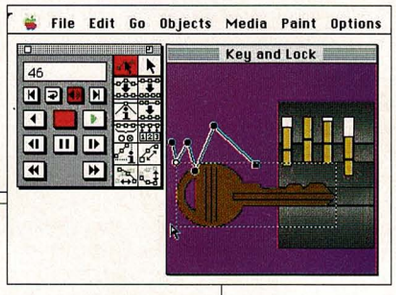
The process of animation begins (as you will have learnt elsewhere in this issue) with the creation of your background, props and actors. Backgrounds are simply the still (or scrolling) pictures over which the action takes place. Both *AW* and *PM* have the ability to import PICT files to provide the backdrop for your scene, but *AW* has superior paint features to enable you to create a background from scratch within the program. Backgrounds (usually) stay the same from frame to frame of an animation.

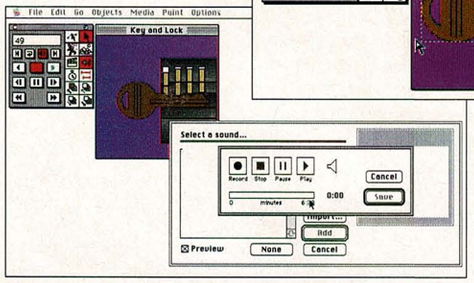
Giving a character life by altering its characteristics from frame to frame is the art of animation.

Once you've created your background, it's time to create your 'actors'. These are images which change from frame to frame of the animation. These can be imported from pre-prepared images, frames grabbed from video for instance, or drawn from scratch in the animation package. Giving a character life by altering its characteristics from frame to frame is the art of animation, and no program can replace the artistic element of that.

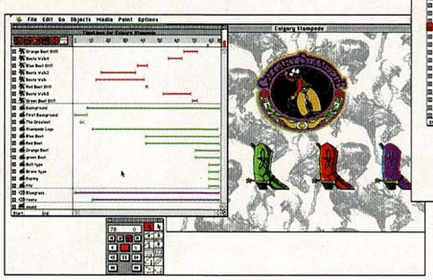
Both *Animation Works* and *PROmotion* use a cel editor to help you create actors. You can either import an animated cel you have already made, or paint one from scratch. Both programs use an 'onion-skin' method to enable you to see the previous frame you drew in ghost form to help you judge the position and pose of the next cel. When each actor is created, it is given a number of cels. If for

Both programs enable you to edit the path an object will take by simply clicking and dragging its frame points.

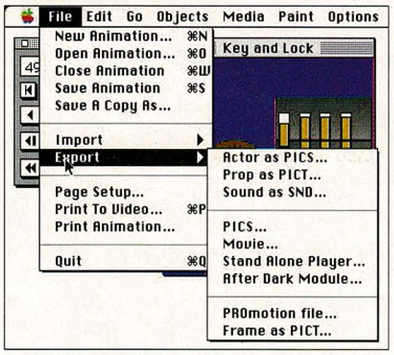




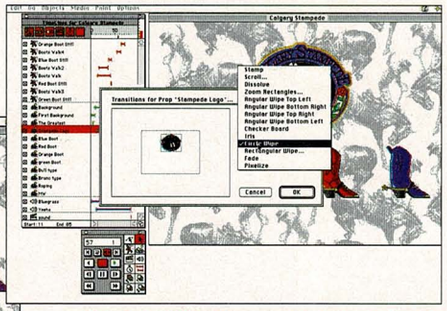
PROmotion enables you to sample sound effects directly into the application using a microphone attached to your Mac.



PROmotion's Timelines window is a powerful way of editing an animation. It is this feature more than any other that makes it the superior package.



PROmotion's range of export file formats will make it an attractive package, especially to those keen to create their own *After Dark* modules!

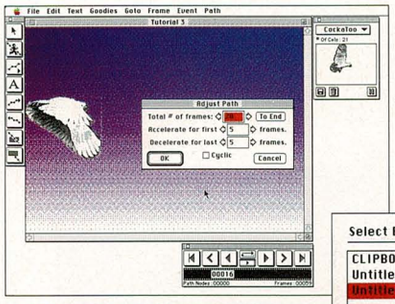


Objects in *PROmotion* can make their exits in style with these excellent transitions. But as with *Animation Works* wipes, they should be used intelligently.

A WORD OF WARNING

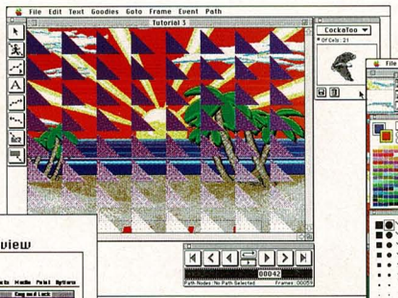
This review was undertaken using a Power Macintosh 7100 and the PPC version of *PROmotion*. During the review, most notably when we attempted to play several of the demo animations that are included on Motion Works' *PrimeTime* demo CD-ROM, the machine crashed with a 'floating-point co-processor not installed' error. It worked without problem on a Quadra 650 we tried it on.

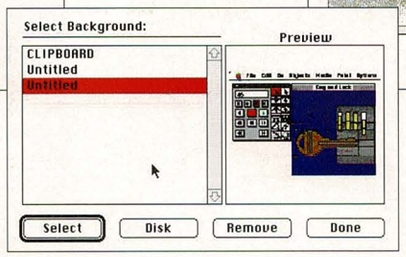
When I contacted the distributors, Gomark, they were at a loss to explain the cause of the problem because *PROmotion* is such a new product. Disabling almost all my System Extensions failed to solve the problem fully, and I suggest potential purchasers of this package contact Gomark for an update on any compatibility problems before shelling out their cash for this otherwise superb product.



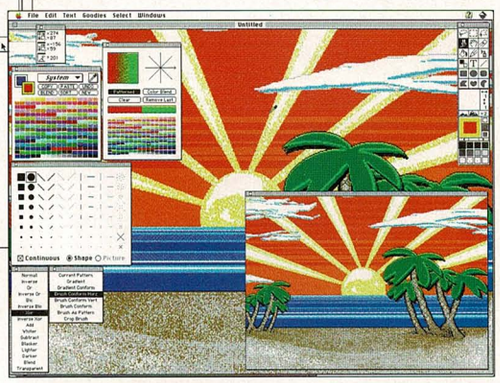
Animation Works enables you to edit the acceleration and deceleration of 'actors' through the Adjust Path function. Judicious use of this feature makes the motion of animated objects appear far more realistic.

Background can be switched with wipes like the one here. These effects should be used with caution as they invariably look quite awful.

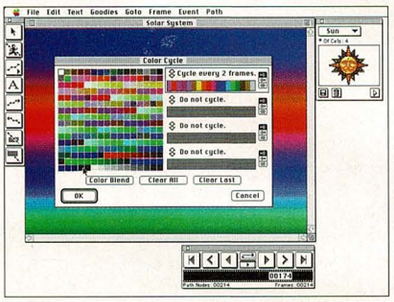




Animation Works also enables you to import a PICT created in another art package to use as a background, or to select the contents of the Macintosh Clipboard.



The background editor of *Animation Works* is pretty much a fully featured 256-colour paint package.



Colour cycling is one of the simplest forms of animation, but used creatively it can be used to fool the viewer into thinking that they are seeing something move. *Animation Works* has a very effective colour cycling feature.

instance you wished to get a natural looking figure of a walking man, you might need to use 16 cels for smooth motion. A car driving by might be achievable in just three or four frames.

Once the actors and background are ready, it's time to combine the two. It is here that these programs really come into their own. They both offer numerous features which enable you to control the paths of the actors on a frame by frame basis, or the packages can 'tween' frames given certain information about how to move or scale the actor. Actors' paths can be created and edited by point/clicking, or by means of the many path control menus. Then it's time for the actors to make their entrances/exits, and say their lines. *PROmotion* has the edge in this field thanks to its excellent timeline based control method, but both packages have many different fades or wipes that can be used to put an actor onto the screen, although these are more use for presentations than traditional character animation. Both enable you to attach sounds to particular actions, adding the finishing touch to any animation.

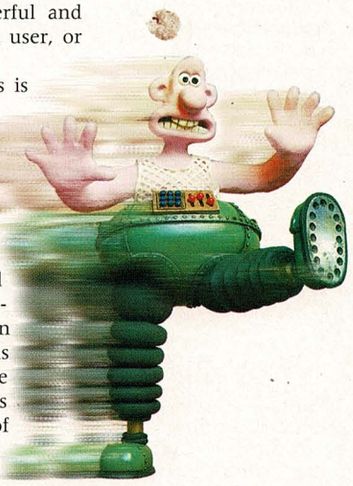
The next Mickey Mouse

When your anim is complete, *AW* and *PM* take slightly different approaches to how you play it back. Both can save their movies as PICS animations, the standard 2D animation file format. But *PROmotion* can also save its files as QuickTime movies, Stand Alone Player files and *After Dark* modules for use with the popular screen saver. *Animation Works* cannot create stand alone files, but the package includes a freely distributable player program. *AW* also enables you to save the animation as a Scrapbook file, or as separate PICT files for manipulation in other packages.

Animation files can be very large, and storing your work on disk can eat hard disk space very quickly. The two programs deal with this in different fashions. *PROmotion* – aimed, one assumes, at the more professional user – supports the Sony VBox and VISCA protocols to enable the animation to be printed to a video recorder. *Animation Works* saves in a 'non-embedded' format which means that images (backgrounds and actors) which are common to several anims can be stored on the hard drive just once, and accessed separately by all the anims which use them.

Neither *Animation Works* nor *PROmotion* will make an animator of you if you don't already have some drawing skills and an understanding of the basic principles of cel animation. But if you are equipped with those two prerequisites, and you want to see your pictures moving, either of these programs would be an ideal choice. *PROmotion* is aimed more at the serious or professional user, while *Animation Works* is slightly less powerful and more accessible for the younger user, or amateur animation enthusiast.

The difficult bit of animations is the creative input, not the mechanics of putting images on screen, moving them in a predetermined fashion and then taking them off again. *Animation Works* and *PROmotion* are both adept at this. As a result both packages are ideal for making stand alone presentations for point of information displays – animated bar graphs and the like. As for creating the next Mickey Mouse... well, that's going to take more than one of these programs, but they could certainly help! **MF**



DISNEY MATTER

Walt Disney (1901-1966) is the world's most famous animator. He established his own studio in Hollywood in 1923, and his first Mickey Mouse cartoons (*Plane Crazy*, which was silent, and *Steamboat Willie*, which had sound) appeared in 1928. Me? I prefer Hanna-Barbera.

ANIMATION WORKS

Price: £151.87. Out: now.
Requires: Any Mac with System 6.0.5 or above.
For more details contact Gold Disk on 01753 832383

FEATURES 86%
Well presented, with a few nice touches that put it ahead of *PROmotion*.

EASE OF USE 75%
Animation isn't a simple subject, but *AW* does its best to start you going.

DOCUMENTATION 87%
Very good – an intro from an ex-Disney animator and a free video.

VALUE FOR MONEY 89%
A great package for anyone wanting to bring their 2D artwork to life.

MACFORMAT RATING 85%

PROMOTION

Price: £296. Out: now.
Requires: Any Mac with System 6.0.7 or above.
2.5Mb for b&w animation, 4Mb for colour.
For details contact Gomark on 0171 731 7930

FEATURES 85%
Everything you need to make things move on your Mac screen.

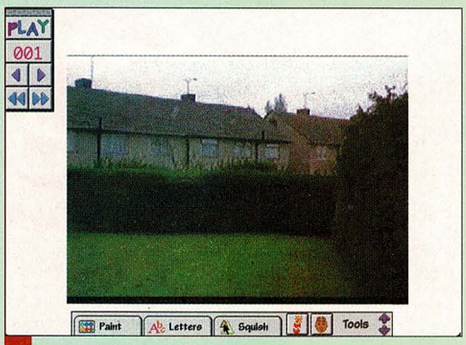
EASE OF USE 75%
It makes the subject as easy as possible to get to grips with.

DOCUMENTATION 87%
A detailed and accessible manual, pitched at the right level.

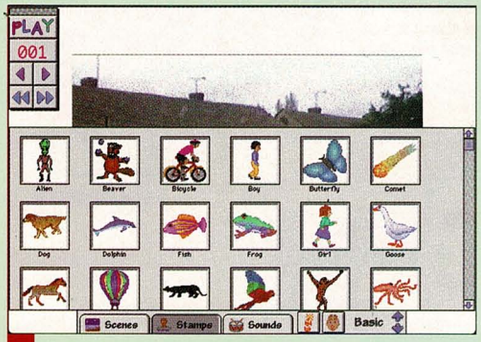
VALUE FOR MONEY 75%
The price is in line with the 'pro' features it offers, but it certainly ain't cheap.

MACFORMAT RATING 80%

How to liven up your common or garden with a close encounter!



1 I've grabbed an image of my back garden from a video still camera and imported it into *Amazing Animation*. The PICT could have equally come from a scanned image or a videotape, depending on your Mac's facilities. A 630 would be ideal for this.

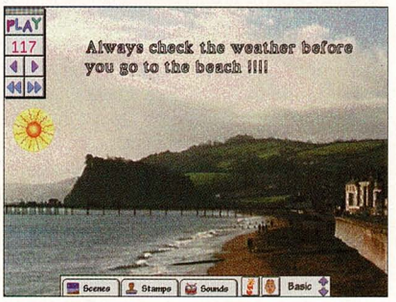


2 Now I want to add an object or two, and I can choose them from the 'Stamps' provided in the program. All you have to do is point and click to select the object and load it into your scene. Choices range from the everyday to the surreal!

3 I've chosen to add a spaceship and an alien, and here they are appearing in my back garden – the neighbours'll never believe it! I've re-sized the images progressively, so that as the spaceship approaches it gets bigger.

Amazing Animation

Now you can release your imagination and create your own cartoons without the painstaking labour – Phil Moore and a couple of friends explore the world of *Amazing Animation*.



Prudent advice from ten year old Oliver's 'silly information pack', if you harbour any intentions of visiting a British beach.

Every so often, a program comes along that makes me think 'Wow!'. *Amazing Animation* is one of those – in fact, I'd say that this is one of the best programs for children I've seen for a very long time.

The basic idea of the program is simple – it provides tools to create animations. Past programs have attempted to do this, but they've generally been difficult to use or they've provided only very rudimentary facilities and graphics. This program is completely different: it is not only easy to use and has good graphics, but it also has an attribute which often marks out the very best software for children – you can customise and add to what's already in the package.

MACFORMAT Classic

The program

The walkthrough above shows how easy it is to create an animation, add sound and provide a written narration. What the walkthrough can't show you is that the results are immediate: as soon as you've moved a character or object, just click on 'Play' and it plays what you've done so far. This means you can edit as you develop the animation. It also means you can animate two or more objects in each scene: you go through once moving one object, then go back and move another, and both will then be animated.

Alternatively, you can create the whole thing and then, using the storyboard, zoom in on particular parts of the animation to edit what you've done.

One notable feature of the program is that for many of the characters or objects which come with the program (such as the spacecraft and dog), all you have to do is point, click, hold and drag, and as you drag, the character moves – the animation is done for you. In this way, just moving the dog across the screen causes its legs to move. It's a little fiddly co-ordinating the movement to keep time with the legs, but it is possible with a little practice.

Perhaps the best aspect of this program for children is that you can add scenes and characters or objects taken from the child's own life. You will need extra equipment to do this: a scanner or a digital camera like the QuickCam is very useful. Of course, it may be that your local school has such equipment that they're willing to let you use.

Once you have captured or scanned an image and turned it into a PICT (most graphics programs will let you do this), you import it into *Amazing Animation* and it appears in your scene. You can re-size it and move it into position, but you can't animate it in the same way that you can with the characters provided with the program. Nevertheless, the potential for children to, for example, create an animation based on a holiday photograph or on a picture of their school or house, means that this program is one which children can make their own.

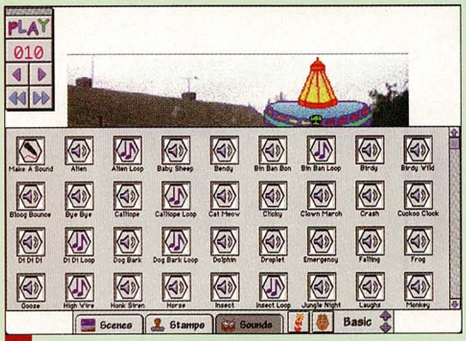
If including still images seems a little tame, you can import a QuickTime movie into an animation – it appears as a window and the movie starts as soon as the frame it's in is playing. So, if you've managed to capture some video as a QuickTime movie file, that can be included in the animation too.

You can also add your own sounds. With a little time and effort, children can create animations like the Brøderbund *Talking Books*, with the words of the story appearing on screen, read by the child, each word or phrase being highlighted in a different colour as they're read.

Another interesting aspect of the program is that you can insert a button anywhere on screen which, when pressed, takes you to a different file. This means that you can create several different animations and provide a single 'front page' for them all. This might be useful in school, where different children could create animations about a similar subject and the teacher could perhaps provide a

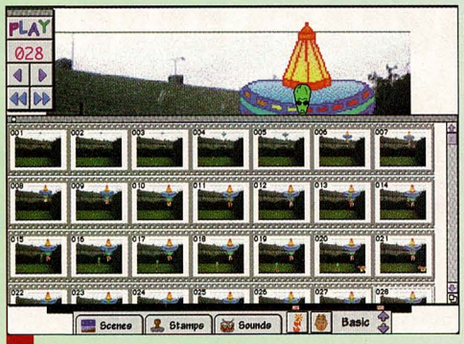
QUICKCAM

It's small, only needs an LC, takes up very little space on your hard drive and costs a mere £152. Unfortunately, the QuickCam only films in black and white, but it's a great for making rough movies or quickly taking still pictures. A colour version will be forthcoming. For more details contact Computers Unlimited on 0181 200 8282.



4 And now I want to add some sound. I could choose to record my own by selecting 'Make a sound', but I'm going to use one that's already provided. I just point and click and the sound is added to the scene at this point.

5 Now I can add some writing: you have a choice of a whole range of fonts and font sizes, and you can apply colour to the letters as well. You can even have each word or phrase highlighted on the screen as they're read.



6 Here you can look at all the frames in your animation, copy and paste frames, or scroll through them. Point and click at any frame and it comes up on screen – so it's easy to move around and find exactly where you need to edit.

Bet you didn't know the school bus service goes as far as Jupiter, did you? Ah, modern technology.

front page of background information – almost like an encyclopaedia.

Incidentally, the program comes with a 'player' – this is a program which is designed purely to play the animations and which can be given away with an animation file. Alternatively, you can save the animations as QuickTime movies, as a series of PICTs or as a Scrapbook movie, and you can even print out an animation as a series of images. In any case, you can share your animations with anyone who has a Mac, regardless of whether they actually have the program.

Ideas for children

I gave the program to some friends to see what their children could do with it. If you have the CD edition of MACFORMAT, you'll be able to see what Patrick (aged 8) came up with: he told a story about an alien who wants to see what life is like on another planet. Despite there being good points about the new planet, he decides in the end that he much prefers being at home. I also let my ten year-old loose on it and, within an hour, he'd come up with a 'silly information pack', which you can also find on the CD. (Sorry about his sense of humour!)

Both of them said how much they'd enjoyed using the program. Patrick's main comment was 'This is really brill!' Oliver was similarly enthusiastic: 'I wish I could use this at school.'

But Patrick and Oliver really only just scratched the surface of what could be achieved with this program, given time. It could be used for story telling, as Patrick has done, either based on real locations or on scenes drawn in a program like *MacDraw*. As a group enterprise, with different children contributing the plot line, characters or backgrounds, this could be an interesting way of re-telling a favourite story or a book which has been used in a class reading.

Alternatively, it could be used to recount factual information: for example, using images of places visited on a field trip with animations and/or narration, pointing out things that the children found and saw, with labels and comments from the children involved.

Imagine going along to a school's open or parents' evening and seeing children's animated work on display – wouldn't you be impressed?

AMAZING ANIMATION

Price: £35. Out: now.
Requires: System 6.0.7 or later, 2Mb free RAM minimum, 6Mb free recommended.
For more details contact Claris on Freephone 0800 929005.

FEATURES 89%
All you need to create a convincing animation, but limited number of characters supplied.

EASE OF USE 88%
Well designed and very easy to use straight away, but demands a lot of disk space.

DOCUMENTATION 90%
Clear and concise, but hardly needed!

EDUCATIONAL VALUE 95%
Superb! Possibly one of the best educational programs on the market.

VALUE FOR MONEY 95%
Excellent price for a program that is educational and very entertaining.

MACFORMAT RATING 90%

Drawbacks

Ah, yes, there are drawbacks. In terms of children using it, both Patrick and Oliver thought there ought to be more characters and objects supplied with the package. This single fact stops the program from getting an even higher rating, and it is admittedly a fairly substantial criticism when you're looking for long term enjoyment. Unfortunately, while it is possible to create your own characters, they cannot be animated in the same way. And for those who don't have access to a digital camera or scanner or who don't have a Mac capable of easily digitising such images, all they can use is what's provided with the program.

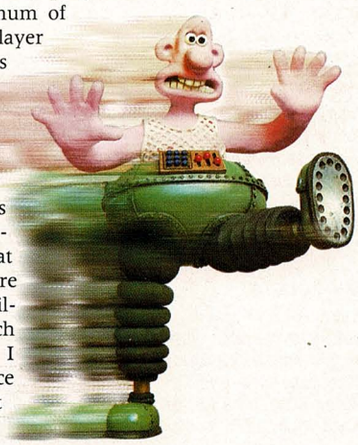
And don't forget your repair kit, or your waterproofs, and try not to fly over the handlebars downhilling!

Another drawback for many will be the size of the files created by users. Patrick's animation lasts for only about two minutes and uses 3.2Mb, which is large by anyone's standards. So if you've got limited disk space, watch out for ambitious users! The quality of playback is also determined by the amount of RAM which is devoted to either the main program or the animation player: the main program requires an absolute minimum of 2Mb RAM and even the player needs 1Mb. For larger files (over 1Mb) it is much better to increase the RAM devoted to the program to as high as it can be taken.

Even so, given that this program offers huge potential for children, whether at home or school, and there aren't many programs available offering children such powerful animation tools, I think it seems a small price to pay. My advice is, get this program! **MF**

ZOOM IN!

See MACFORMAT 21 for our exciting 12 page feature on everything you could possibly want to know about video and your Mac!



Morph 2.5 vs Elastic Reality 1.21

Once again, computers emulate nature with two Mac packages that can transform images and movies like a caterpillar into a moth, but just a little faster. Marc Woods explains.

Mention the word 'morph' and most people will probably think of the cute little Plasticine character. That's not far off the mark – like him, morphing is all about metamorphosis. A couple of years ago, a plastic man called Michael Jackson gave the world its first real introduction to morphing with his video for the song *Black or White*. This involved several human faces being changed into each other successively while mouthing the words to the song and moving.

Since then we've seen many examples of this in hundreds of adverts from toothpaste to cola, and in films like *Terminator 2*, which has some of the most splendid examples of morphing to date.

Morphing is relatively new on the Mac, so put that blockbuster film on hold, but if you fancy morphing your face into another, or even a packet of digestives, then these two programs can do it. Both enable you to do the main things any morphing package should be capable of:

1. Morph one image to another and save it as a QuickTime movie, numbered graphic files or other animation formats.
2. Work with two movies and morph them together or join them with a morph sequence.
3. Take a single image and alter it or take two images and do a combination of alterations, a technique called Warping.
4. Create a simple transition of two images by simply fading between them (see 'Fade effect' on MACFORMAT's CD-ROM).

Morph has an embossed preview box in the top left hand corner. The left side of the box holds the start picture or animation and the right side holds the final picture or animation. *Morph* works in three main windows: the start and end preview box; and the work window where you place the key points and lines and movement within imported movies to set up links between the images for morphing. Double-clicking on the start or end preview opens the relevant work window.

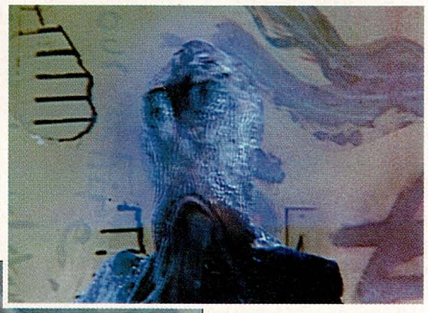
Imagine your start and end images are two faces. When you place a key point or line on the bridge of the nose on the start image in *Morph*, a corresponding one appears in exactly the same position on the end image (or the corresponding frames and positions if it's a movie). But exactly the same position as in the start image may not be the bridge of the nose in the end image, so you can move the key point in the end image to where you want it. Once you've done this, the part of the face in the surrounding area of that point appears to move and the rest cross fades. Drawing shapes with key points and lines around parts of bodies, faces, fruit etc is like tracing in a drawing package. *Elastic Reality's* system is slightly different: you draw all your shapes as with *FreeHand* or *Illustrator* on the start image and copy and paste or redraw them on the final image – they aren't automatically placed there. Once the shapes are

Demos of both *Morph* and *Elastic Reality* are on this month's CD-ROM.

TWEENING

A process involving the program generating the missing parts of a sequence. So if you were to have a picture of a red ball in the sky, and a similar picture but with an orange ball touching the ground instead, you could just encircle the respective balls and join them, and the program would move the ball between the two positions as if it were falling.

The theory that people look like their dogs goes one step further. Although a King Charles spaniel might be a better likeness.



Morph's start and end windows are open, showing the relative positions of the start and end control points. This screen shot also shows a preview frame from the final movie at half distance.

File Edit Sequence View KeyPoints Movies Windows
Turning Heads Dynami
End Image of Turning Heads
Morph Image of Turning Head
Start Image

KEY POINTS

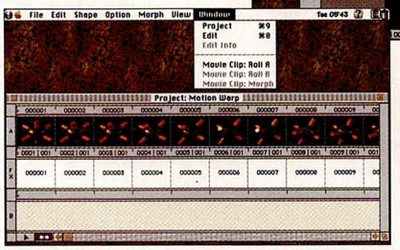
These are pairs of 'control' points which you place in the source image's linking areas that are to be directly transformed from the start to the end image.

Elastic Reality is used in the production of many TV series such as *The X-Files*, and, while not necessarily used on Macintoshes, the principles are the same. Here the program is being used for the special effects on Clive Barker's new film, *Lord of Illusion*. Many thanks to The Post Group for providing these shots.

This is an example of warping – a specialised type of morphing which involves selective distortions of an image, not simply a wholesale transformation.

Can you see a subtle difference in the pictures? This example was created with *Morph*, but both these morphing programs will produce similar final results.

Elastic Reality's edit window is the main work area for the program; most of the requirements of morph creation are handled here. The image area shows a 50% transparent mix of the two images, showing the relative positions of the necessary control shapes.



Elastic Reality's initial interface – perhaps a little daunting? This shot is of the 'project' window with a movie imported into 'Roll A' (notice individual frame previews) and special FX specified for the duration of the movie.

ready, they're joined to tell the program what to tween between. *Elastic Reality* also has an advanced system for the creation of mattes (masks) for compositing.

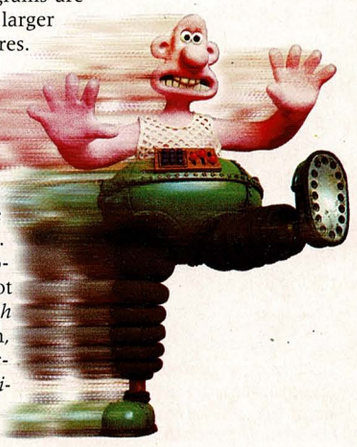
Elastic Reality is the more advanced of the two programs. Its roots lie in the professional standard Silicon Graphics equivalent, which has been road tested in a far harder market. Although not as easy to use as *Morph*, mainly because there are far more options, *Elastic Reality* has the edge. On opening you're provided with many menus and a project window of three strips: Roll A image; FX; and Roll B image. The Roll A and B strips are timelines, containing small previews of the images you're working with (or consecutively each of the frames of the movies you're working with). FX is where you work on the images – double click on it to open the edit window. Like *Morph*, it enables movement within movies and the placement of key points and lines. With *Elastic Reality*, different parts of the same image can vary in their motion and transparency curves, so that in the morphing process from the first image to the final image, the whole picture needn't transform at the same rate. Imagine the silhouette of a man transforming to that of an ape: the body and head could be defined as one object, the ape likewise, and the arms and legs defined as another object. The group containing the shapes for the arms and legs can then have their curves altered so the arms appear to transform faster than the rest of the torso. *Morph 2.5* only allows a variation of motion throughout the sequence of easing in and/or out, so it's far less versatile.

Creating a morph sequence usually involves two or more similar images or movies. Both programs work on a key point system, where you manually arrange key points and lines in appropriate positions and areas in the first image, then reposition them in corresponding positions on the final image. This is how the programs determine the transition between the images. So in the case of the images of a female head with a black background and a male head likewise, you can place key points around the hair, face, mouth and nose etc in corresponding positions between the two faces. The program does the rest for you – combining the effects of movement, distortion and transparency, it tweens between the two images. Then it calculates the transitional movement to generate the morph sequence. *Elastic Reality* has a useful wireframe preview option which creates an animated line art preview of the shapes' movement.

The next step up is dynamic morphing, where you take two moving images and morph between the two. The classic example is Michael Jackson's *Black or White* video, where a woman flicks her head from right to up as she changes into a man following the same movements. In both programs a great deal of planning and work is demanded. With *Morph* and *Elastic Reality* you can move inside the movie – in *Morph* with a slider bar and in *Elastic Reality* by clicking on the frame counter and typing in the desired frame number or by using a scroll bar. You must add control points to both movies, but you need to adjust these key points through the movie so that they correspond to the appropriate parts, which is obviously a more demanding process than working with just two images. Placing key points every five frames or so should be adequate because, as before, the program will calculate the movement between the shapes from one altered frame to the next for you.

The manuals for the two programs are quite different. *Elastic Reality's* is larger with more tutorials and features. But it's much harder to understand. *Morph 2.5's* manual is simpler with a typical Mac manual approach.

Morph doesn't have as many or as varied functions as *Elastic Reality*, so the considerable price difference is justified. *Morph 2.5* is a very powerful program that you can learn a lot from and is great fun. *Morph* could be the one to start with, but if you intend to get into morphing seriously, then *Elastic Reality* is a considerably more sophisticated tool. **MF**



ALSO ON THE CD

In the Animation folder on this month's MACFORMAT CD-ROM is a folder containing examples of morphing created by Marc Woods to demonstrate many of the techniques discussed here.

SILICON GRAPHICS

A high end graphics orientated computer system. Faster than PowerMacs, they are often used for film quality morphing, using *Elastic Reality*.

WARPING

A by-product of the morph abilities of the programs, allowing specific distortion of aspects of the highlighted image or images, for example, enlarging the nose and ears on a face.

MACFORMAT Classic

MORPH 2.5

Price: £117.49. Out: now.
Requires: any colour Mac, System 6 or later, QuickTime 1.6, 10Mb of hard disk space, 5Mb free RAM, PowerMac native.
For more details contact Softline on 0181 401 1234.

FEATURES 69%
Enough useful features to be of interest, but a long way short of *Elastic Reality's* range.

EASE OF USE 90%
Well structured and easy to use.

DOCUMENTATION 80%
For the market it's aimed at, the manual is fine, with reasonable tutorials and good reference, glossary and index.

VALUE FOR MONEY 91%
A very reasonable price for a very reasonable product.

MACFORMAT RATING 84%

ELASTIC REALITY 1.21

Price: £292.57. Out: now.
Requires: 256 colours, System 7 or later, QuickTime 1.6, 1Mb of hard disk space, 6Mb free RAM, PowerMac native.
For more details contact Softline on 0181 401 1234.

FEATURES 92%
More than a lifetime's worth of features and variables!

EASE OF USE 80%
Far more features than *Morph 2.5*, so harder to get to grips with. It is complicated, but it supports a sound system.

DOCUMENTATION 85%
Great tutorials, good reference and index, but no glossary.

VALUE FOR MONEY 90%
A relatively high price for a high quality, well thought out product.

MACFORMAT RATING 90%

Scenery Animator

Scenery Animator is battling for Virtual World Domination with _Vistapro_! Meanwhile, some cogitations on the point of landscape generator programs and other such dilemmas.

With _Scenery Animator_, movies can be played at virtually any size, but larger image sizes will mean much slower playback frame rates.

Landscape generators are strange things. In fact, strange might not be entirely the correct word. Useless might be a more appropriate adjective. You see they don't actually do anything useful, so people who want you to buy them have to think up all sorts of bogus uses to which they can be put. Planning camping or mountaineering trips are two of the most creative I have heard, but most mountaineers and campers are outdoor types more likely to carry an ordnance survey map than a PowerBook.

During the rendering of an animation, _Scenery Animator_ keeps you informed with a constant frame count and thumbnail preview.

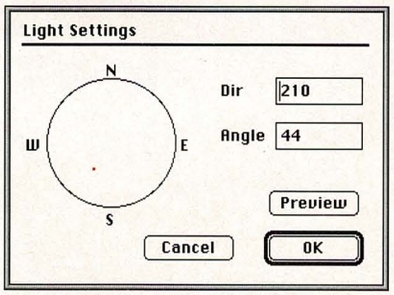
What the people who are peddling these utterly preposterous programs seem to overlook every time, is that landscape generators are just about the most fun programs you can buy. Everyone should have one, and _Scenery Animator_ may well be the one you should have.

In effect, the competition for Virtual World Domination is one between _Vistapro_ and _Scenery Animator_. Both programs originated on the Amiga, where _Scenery Animator_ always seemed to be one step behind _Vistapro_, and (in a strangely Zen-like paradox) one step ahead at the same time. So it is with the Mac. _Vistapro_ made the cross platform step first, and very successfully, but now _Scenery Animator_ is here, and it comes in PowerMac flavour where _Vistapro_, as yet, doesn't. The other even better ace in the pack is that _Scenery Animator_, perhaps not surprisingly given its name, can animate landscapes too!

Scenery Animator can load landscapes in DEM format (see boxout), convert grey-scale PICT images to landscape information, or create a random landscape from a fractal 'seed'. Once a landscape is created or loaded it will be displayed in the map window, where it will look like a traditional relief map. In this window a series of simple mouse clicks can position the 'camera' or viewpoint from which direction a picture will be 'taken'. Dragging away from and towards the position of the cameras will determine the angle of the view, or focal length of your virtual camera's lens.

A low-detail preview of your animation can be viewed in the Camera Window. Our example shows the animation in the middle of a barrel roll down the Grand Canyon – and that's a particularly big canyon.

Another series of clicks can be used to form the key-frames of an animation. The animation can be previewed in the Camera window, then selecting Render Animation from the Animation menu sets it all in motion. It all sounds too simple to be true, but it really is that easy.



Setting the angle of the light in the image can be done by clicking in the light control panel – controlling the intensity of illumination isn't so easy!

In the long run it's difficult to say which scenery program is superior. _Vistapro_ comes with a sexy CD of landscapes and support programs, and it offers more sophisticated control. _Scenery Animator_ has superbly easy animation features, and creates landscapes at least as good as _Vista's_. Buy whichever one you like, but buy one of them. **MARCUS DYSON**

OPEN NEW VISTAS

The other scenery animator on the Mac is _Vistapro_, first reviewed way back in MACFORMAT 15. It is now available with a fly-through generator which can produce a point-of-view 'film' of a journey through virtual landscapes generated with the program – for some sample fly-throughs, see the MACFORMAT 20 CD. You'll also find a demo of the latest version of the program on issue 25's CD. _Vistapro_ costs £119.95. For more details contact Meridian on 0181 543 3500.

SCENERY ANIMATOR

Price: $99 + $5 shipping. Out: now.
Requires: any colour Mac, System 7 or later, 4Mb free RAM. Versions are included to make use of PowerMacs or Macs with FPUs.
For more details contact Natural Graphics in the US on 001 916 624 1436.

FEATURES 60%
You can't edit DEM files, create your own non-random landscapes, create buildings or import objects from other 3D packages like _Animator's_ Amiga cousin can.

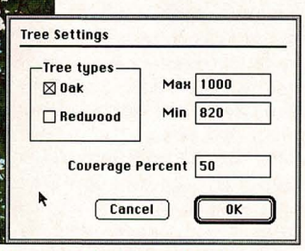
EASE OF USE 87%
Lacks some of the sophisticated controls of _Vistapro_, but far easier to master.

DOCUMENTATION 70%
Not big, and not clever! But it's so easy to use you don't really need more.

VALUE FOR MONEY 75%
The animation is superb, but a few extra features wouldn't go amiss.

MACFORMAT RATING 81%

This shot shows how good _Scenery Animator's_ trees and cloudy skies are. The images can be startlingly realistic.



You can add two types of tree to your landscape, and they're very good. But more types and more control over their relative densities would have been better.

DEM THERE HILLS

Scenery Animator relies on a file format devised by the United States Geological Survey department. These files, Digital Elevation Models, are matrices of numerical information, giving the height of a grid of geographical positions on the surface of the earth. Landscape generators can turn this information into a 3D model, which they can then render – the principles have been discussed in MACFORMAT's 3D tutorial series.

Because the DEM is a US government file format, almost all of the territories of the United States are available, as are some of the other areas the US has visited (the Moon and Mars, not Korea and Grenada). But DEMs of Europe are not easily available, although there are a few around. _Scenery Animator_ ships with only five demo DEMs. The accuracy of landscape that can be created from a DEM depends on its resolution. High resolution DEMs can be purchased from a number of sources, but low resolution DEMs can be ftped from: ftp://edcftp.cr.usgs.gov/¬pub/data/DEM/250/

SOME ANIMATION ALTERNATIVES

If we've got you interested in trying out animation for yourself, here are some other animation packages you might like to investigate.

■ LogoMotion 1.5 (£91.65)
LogoMotion isn't just for spinning logos; it can create whole 3D QuickTime movies. You can import any *FreeHand* or *Illustrator* EPS, create objects using lathe and extrude workshops and add surfaces, then use a time-based sequencer to animate your text or objects in any way. Included is alpha-channel support for overlaying animations over video or stills, plus lighting effects, props and backdrops.
Requires: FPU, 8MB RAM, System 7
Contact: Gomark 0171 731 7930

■ ADDmotion II ($149.95)
ADDmotion II is a 24-bit colour paint, animation and sound XCMD for *HyperCard 2.1*. Features include: onion-skinning, anti-aliasing, direct manipulation of foreground or background objects, built-in sound record and edit. QuickTime compatible.
Requires: 2Mb RAM, System 6.0.5, *HyperCard 2.1*
Contact: Motion Works 00 1 604 685 9975

■ Playmation (£410), Animation Master (£821)
Both these programs are spline-based 3D animation packages, with point-and-click modelling, tweening, lighting, lip-sync, motion blur and full rendering features, including ray-tracing and texture-wrapping, even coloured shadows from multiple light sources. *Animation Master* also offers Inverse Kinematics, a New Materials editor with channel control for animating procedural textures, and custom textures and object attributes which you can save and apply to individual 'patches'.
Requires: FPU, 8Mb RAM (Quadra and 16Mb rec.)
Contact: Art Electric 01666 825 290

■ Three-D (£549)
Import any 3D or CAD file, then add motion and shading. Animate multiple objects, cameras and lights in 3D space, add texture and shading, then composite and output as PICT or PICS.
Requires: Mac II, 5Mb RAM, System 6.0.5.
Contact: Computers Unlimited 0181 200 8282

■ The Animation Stand ($3,000, PPC $5,000)
Complete broadcast and film quality desktop animation production system. Features include multiplane camera control with pan, zoom, rotation and stretch and squash; virtual camera control; slow-in/slow-out and motion tweens; special effects system with mattes, faders and gels; inking and painting suite; directional wipes; fades and wipes; anti-aliasing; SMPTE control; QuickTime drag-&-drop.
Requires: Macintosh or PowerMac
Contact: Linker Systems 00 1 714 552 1904

■ ElectricImage Animation System 2.1 ($7,495)
A 3D graphics system for animation professionals. Features include VTR-like control, image file conversion, digital compositing, sync sound animation, and just about anything else you can dream of. What do you expect at this price?
Requires: FPU, 8Mb RAM (32Mb rec), System 7.1
Contact: Electric Image Inc 00 1 818 577 1627

There are also multimedia authoring packages, notably *Macromedia Director* (£999 from Computers Unlimited, 0181 200 8282), which include extensive animation capabilities. Watch for details of such packages in MACFORMAT soon.

Flipbook 1.0

It's easy to use, fun and of no practical use whatsoever. The ultimate novelty program?

The problem with the multimedia age is the cost of the delivery platforms. Sure, the Connectix Bollock-Cam (or whatever it's called) and AV Macs are bringing the cost of digital video production within the reach of almost any Mac owner. But the cost of replaying the video for your friends could be horrendous, unless you can persuade them all to crowd round your trusty 13-inch Colour Plus. Unless you have *Flipbook*!

This lovable piece of software from S H Pierce and Co lets you show all your QuickTime movies where you like, when you like, for considerably less than the cost of a PowerBook.

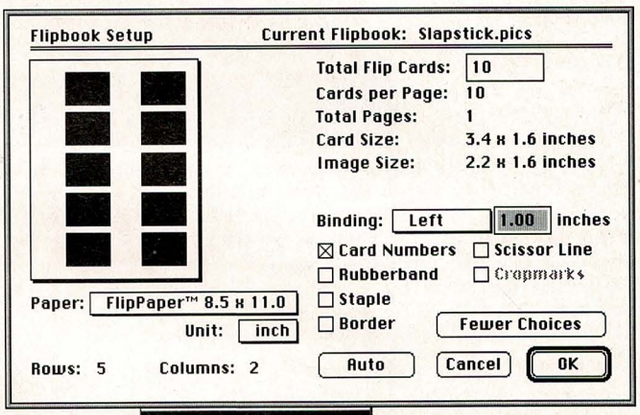
Flipbook is basically a printing utility that loads a QuickTime movie or a PICS animation, sorts the frames and separates them out into individual images. The program then sorts and formats these images for output onto special paper. The paper is perforated so that you can tear out your flick-book pages. That's basically all there is to the program. It has no editing features to speak of, but it can create an animation from a series of single frames stored in a Scrapbook file.

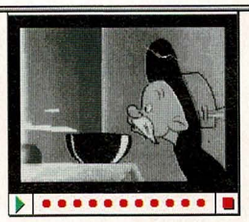
As well as providing print options for flick-book creation, allowing the resulting books to be bound by a staple or a rubber band, *Flipbook* also has a setting to facilitate better thumb control or better assembly. *Flipbook* also has a number of settings to help users create their own Zoetropes, those spinning-top-like devices with pictures on the inside wall, which create a film-like effect when spun around.

Cynics might suggest that *Flipbook* is merely a way for S H Pierce to sell the pre-perforated paper that they provide as a support item for *Flipbook*. To do so would be churlish: a determined user could make do with a 120gsm cartridge paper and a scalpel, and *Flipbook* has a print option to assist these people make a flick-book with the fewest possible cuts. But for those determined to own the real thing, Pierce sell FlipPaper at around £14 for 50 sheets. Each sheet has ten flick-book pages, so the cost is around 14p per frame.

Flipbook presents the opportunity for every AV Mac owner with a video to produce extremely personal and individual gifts. For this reason alone it is worth buying. Add to that the fact that it is simple to use and performs its task extremely well, and you have one of the finest novelty Mac programs around. All you have to do is find a use for it!

MARCUS DYSON





Flipbook really couldn't be easier to use. Load up an animation, open the *Flipbook* Setup window from the file menu, and enter the appropriate values.

FLIPBOOK

Price £46.99. Out: now.
Requires: any Mac II or above, System 6.0.7 or later, 2Mb free RAM, 1Mb hard drive space.
Supports all AppleTalk printers.
For more details contact Mac Warehouse on 0800 181332.

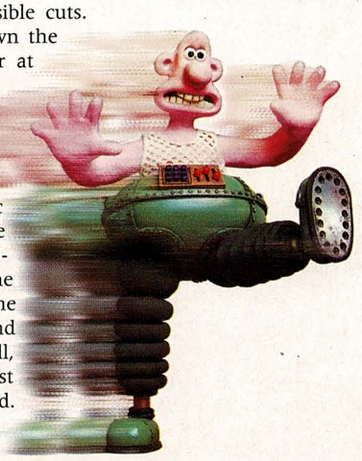
FEATURES 70%
It doesn't do much, but what it does, it does very well.

EASE OF USE 89%
It couldn't be easier to use.

DOCUMENTATION 95%
Superb. Well designed, well written and very comprehensive. Also comes with an excellent paperback introduction to animation.

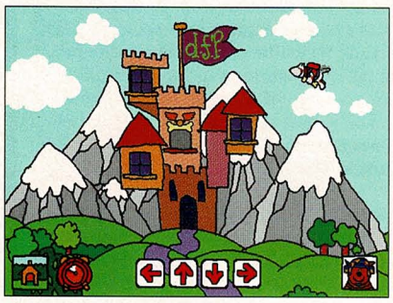
VALUE FOR MONEY 65%
Not cheap for what it does.

MACFORMAT RATING 82%



10 top tips

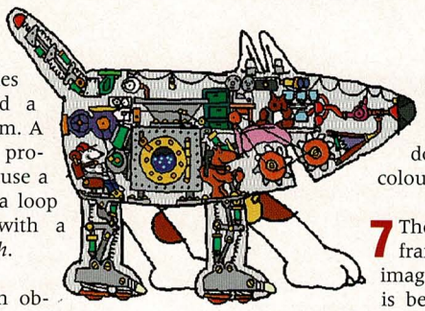
Alan Snow is responsible for the award-winning animation of *PAWS*, the surreal interactive cartoon where you can be Paws The Dog and explore your garden. No matter what your level of animation expertise, Alan has some top advice to offer:



Oh for a dog's life! Paws gets to go on a little flying adventure with the aid of a jet- powered backpack.

1 Content is king. As simple as the animation is, *Roobarb And Custard* is funnier than Disney (in my opinion).

2 Create your foregrounds, backgrounds and animated objects separately. You can join them together for each frame using the alpha channel system found in programs like *Premiere*. Doing this can save you a lot of time and effort.



3 Things like skies and water add a great deal of realism. A good method of producing these is to use a photo and create a loop of moving sky with a program like *Morph*.

4 If you want an object such as a spacecraft to zoom in or out of your shot, render it once to the largest size it will appear at. You can use your editing software to get it at the right size over the background in each frame.

5 Using contrast and colour balance imaginatively can enhance your animation. If that spacecraft is floating towards you in the shot, why not darken it as it gets closer so you can create a more dramatic effect?

6 While working on QuickTime files, use animation compression at millions of colours – the best quality you can – even if the end result is intended to be in fewer colours. This will mean there is less image degradation during production and can mean better compression at the end, when you can bring the file down to the number of colours you want.

7 The lower you set the frame rate, the better the image quality you get. This is because of the way the data compression system works. 12 to 15 frames a second is perfectly adequate for a lot of stuff.

8 Animation within a 256-colour program is often best done using the Mac's system palette of colours, rather than creating your own. Programs like *Director* can have a tough time with customised palettes – unless you're experienced or persistent enough to iron out difficulties like unexpected blank screens.

9 Fact: there is no such thing as a fast computer, a big hard drive or too much memory.

10 Experiment like crazy. I learned everything I know about animating on the Mac by trying everything out.

IT'S A BARGAIN!

PAWS is available on CD-ROM for £34.99. For more details contact Softline on 0181 401 1234.

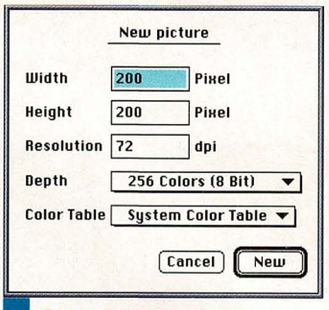
PAWS'S ACCOLADE

PAWS won a Milia D'Or prize at the recent MILIA computer festival in Cannes – and received a 90% Classic rating in MACFORMAT 22.

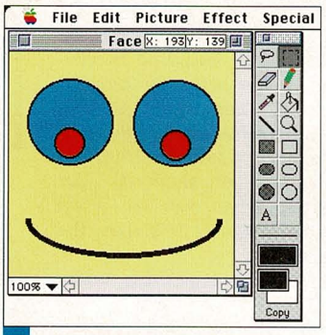
DOING IT YOURSELF

Anyone can have a go at animation. To help you, there are two programs on the disk and CD, *MooVer* and *AnimHelp*. Both do a similar job in that they take a series of still images and join them together to make an animation. We'd love to see your work, so if you create something you're particularly proud of, send it in for inclusion on the cover CD. The address is Disk Editor, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

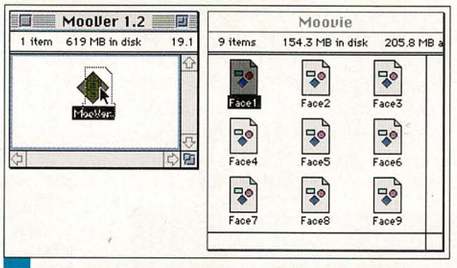
Here's how to use *MooVer* to create a QuickTime animation...



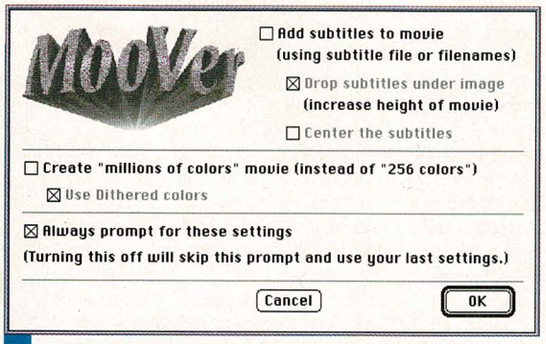
1 Open your graphics program and select a document size which isn't too big, because huge QuickTime movies can be jerky. In this case the program in use is *GraphicConverter*, which was on the floppy disk of MACFORMAT 24.



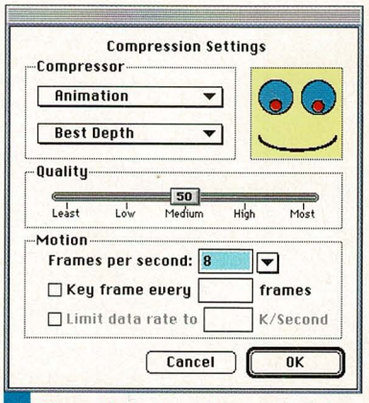
2 For this animation, the document size is 200 x 200 pixels. Draw your master picture then save it. This is the image that you can alter slightly and re-save for each stage of the animation.



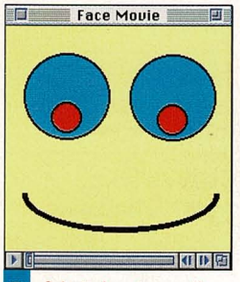
3 Once you have created all the still images, drag the icon of the first image onto the *MooVer* program. Later you will drag and drop the second frame, and so on until all the frames have been added to the animation.


MooVer
Add subtitles to movie (using subtitle file or filenames)
Drop subtitles under image (increase height of movie)
Center the subtitles
Create "millions of colors" movie (instead of "256 colors")
Use Dithered colors
Always prompt for these settings
(Turning this off will skip this prompt and use your last settings.)
Cancel
OK

4 The first dialogue box you reach gives you several options. Perhaps the most useful is the ability to add subtitles to each frame of the animation. However, for this animation just click on **OK**.



5 The next dialog box enables you to select which type of compression you want. Don't worry about these settings for now. However, you may want to change the frames per second option to dictate how fast the animation plays.



6 Select where to save the animation, then drag and drop the rest of the frames onto *MooVer*. Select **Quit** from the **File** menu. You can now play your animation on any QuickTime player, such as *QuickMovie*, which can be found on the MACFORMAT 25 floppy disk and CD-ROM.

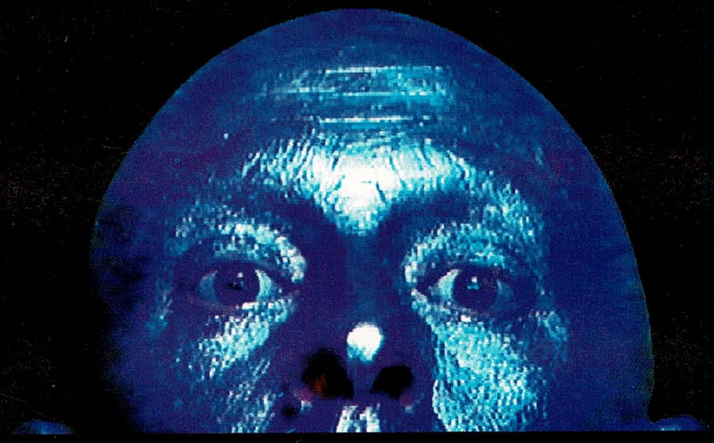
GOMARK DESIGN

Design Solutions for Professionals

CONCEPTUAL DESIGN AND ANALYSIS
Alias Sketch!
Upfront
DesignWorkshop
VirtusWalkThrough Pro
Virtus VR

3D VISUALISATION AND ANIMATION
Infini-D
LogoMotion
StrataVision 3D
Strata StudioPro
Sculpt 3D
Strata Virtual 3D
RenderPro
Backburner
Replicas
StrataClip 3D

Multimedia
SuperCard
Special Delivery
Multimedia Utilities
CameraMan
ProMotion
Instant Replay
Media Paint



PRODUCTION CAD
form•Z
MiniCad
Blueprint
Azimuth
ContoursPro
CadMover

SPECIALISED PRODUCTS
Collage
StrataType
TREE 2D
TREE Professional (3D)
Touch-3D
TextureScape
Elastic Reality

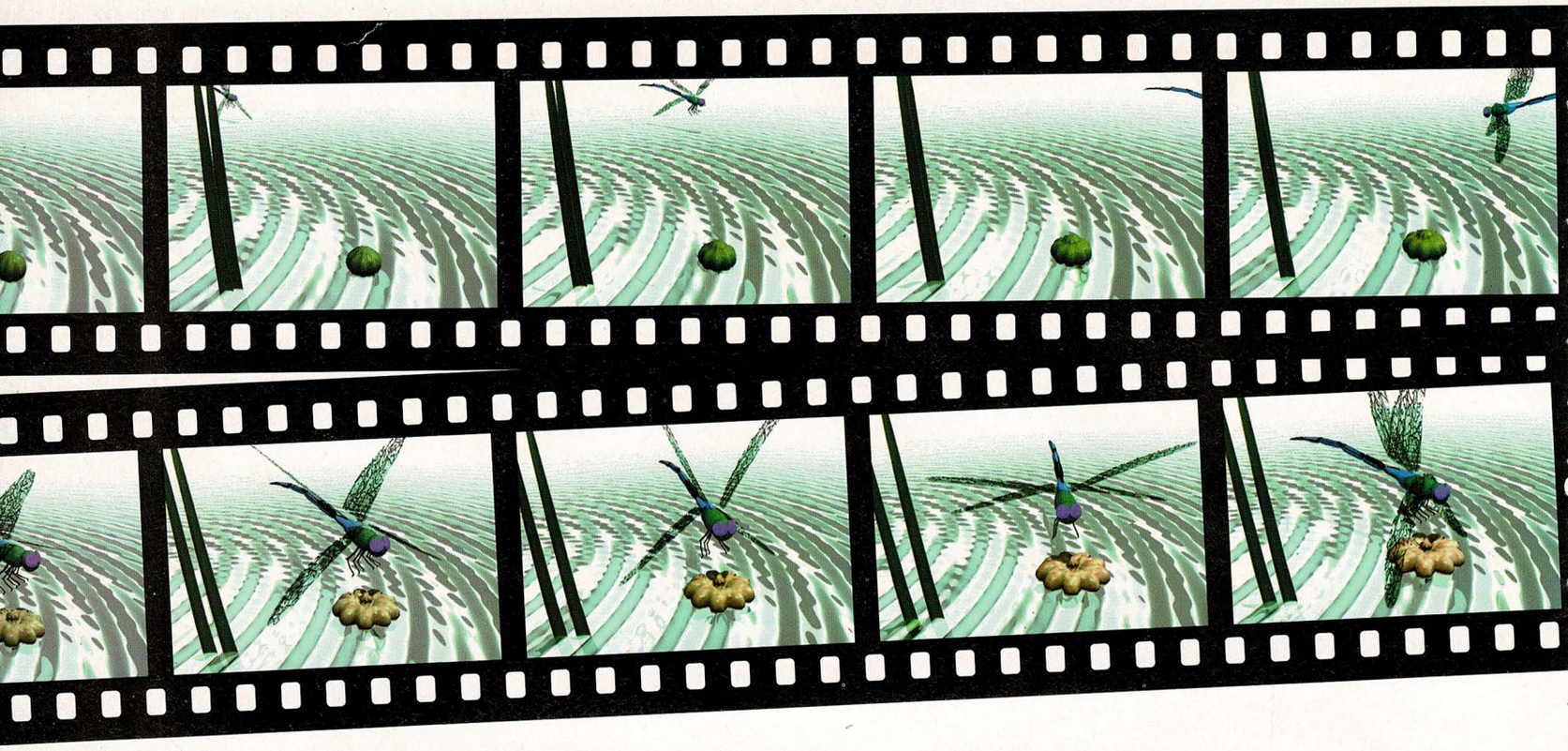
Digitising Tablets
Video Capture/Output
Kurta XGT (A5-A4-A3)
MacHandwriter
Merlin (digital video)
Harlequin II (video output)
Falcon (video capture)

DesignToolbox CD

issue 2

An interactive interface to demo movies, galleries of work, and information on all the products from Gomark Design. Plus, fully functional demo versions for you to try out for yourself.

For all enquiries please ring or fax: Gomark Design
Tel: 071 731 7930. Fax: 071 736 1215.



A moving experience

MORPH
A shortened form of 'metamorphosis', used in computer animation to mean one object (2D/3D) smoothly blending into another.

COLLISION DETECTION
In reality, if one object touches another there's an instant reaction that can be predicted by the laws of physics. Advanced computer animation enables objects to detect each other and react naturally to the collisions.

NORMAL OBJECT MANIPULATION
Every 3D program has a set of standard manipulation routines that mimic the real world – these are Move, Rotate and Scale.

PRIMITIVES
Most programs offer simple objects such as spheres, cubes and other basic shapes that are optimised for fast rendering, but with limited manipulation characteristics. These are called Primitives.

However well you model a 3D object and render it, you only capture a static scene. In the real world everything moves! Brian Larkman gets animated in the final part of MACFORMAT'S series on 3D basics.

Animation is, for many people, the main reason for using a 3D system, the logical next step after modelling and rendering. Once it was enough to get an object to move, rotate or morph its shape, but 3D animation has moved on. Real world effects like collision detection, gravity and flocking are now possible on quite modest machines. Several Mac programs provide means of animating objects, but few are designed around the demands of real world animation – and none below £1,000. Out of the half dozen or so leading Mac 3D programs covered in this series, only *Infini-D* and *StrataStudio Pro* offer specialised animation functions.

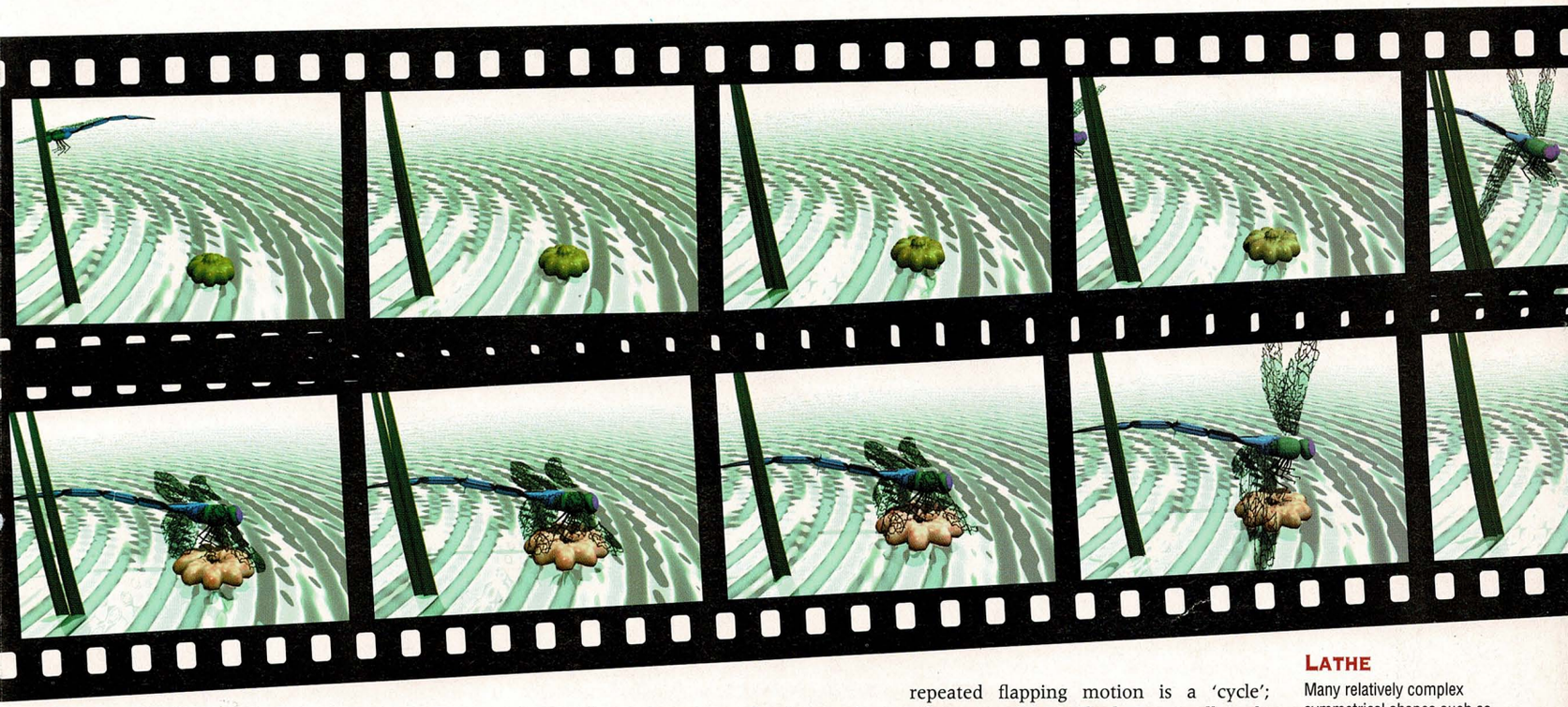
The whole process of simulating movement – in not only animation, but live action movies, television and computers – is dependent on a quirk of our eyesight called 'persistence of vision'. Slight differences between each of a series of images shown to us in rapid succession are perceived as motion. Animation sets out to utilise this quirk, giving life to the visual ideas of an artist that could not normally be experienced in the 'real' world.

Although closely related, computer animation has evolved differently from traditional animation and is both more limited and more powerful than its older sibling. Hand painted art, like wood carving or even reading a magazine, are activities that depend on the subtle 'feel' of materials that the computer equivalents cannot hope to simulate. Traditional animators use an intuitive skill to create the slight variations of gesture and stance that give an animated character 'life'. As a result of advances in the simulation of natural media, computer-made marks do 'look' realistic, but they still don't 'feel' realistic to the artist who makes them.

On the other hand, computers do make it easy to choreograph 3D objects. Once a model has been made, objects can be moved, rotated and scaled in ways that traditional animators can only draw with difficulty. Computers are also very good at showing how light and shadow might fall on complex textures and surfaces. The recent development of simulated 'real world' properties – gravity, friction, collision detection, etc – also allow, for example, the motion of a chair falling down a flight of stairs to be modelled accurately, or the action in a bowling alley to be reproduced realistically: the floor, pins and ball collide and bounce off each other; friction is added to the ball and floor so that the ball rotates rather than just skids towards the pins; it can even begin about half a metre above the floor and bounce first to simulate the average player!

As far as the current crop of moderately priced Mac 3D animation packages are concerned, the two we're looking at – *Infini-D* and *StrataStudio Pro* – are really quite similar, offering almost identical 'sequencer-like' control panels and plug-in 'animation assistants' (see page 60). Other more expensive packages include *MacTopas*, *Electric Image*, *VirtusWalkthrough* and *Sculpt4D*. Between them these offer a good range of animation facilities, geared to the requirements of specialist areas such as broadcast TV or architecture, but nothing out of the ordinary or greatly superior to the two described here if you want to animate the real world.

Infini-D has a typical set of standard animation effects, based on the normal object manipulation tools. Any object can be animated. The process is started by taking a 'snapshot' of the screen – defining all the parameters for each object. Anything



can now be moved, rotated, sized or edited in its 'workshop'. Another 'snapshot' is then taken to define the new parameters. Lights, cameras and even surface textures can be changed and therefore animated.

Each 'snapshot' progresses the animation by half a second. Normally the snapshots are taken at key positions such as extremities of movement. For simple animations this technique is sufficient and at the end of a series of snapshots the motion can be played back.

If you require more control over the timing of your animation, the main control area is the 'sequencer'. Here, each object has its own 'timeline'. At the moment of each snapshot a marker is placed on the line to define the 'event' (whatever you did to the object since the last snapshot). These 'event markers' can be moved and the events they mark redefined simply by clicking and dragging them. For example, the time it takes for an object to move from place to place can be increased by dragging the endpoint eventmarker further along the timeline.

More complex animation processes can be defined with object 'hierarchies' similar to the file/folder hierarchies of the Finder. The tutorial Dragonfly's tail segments are a hierarchy with the largest thorax section, close to the wings, at the top. Move the thorax and the whole dragonfly moves; rotate the end of the tail and it bends alone; rotate the next section and it and the tail-end rotate together. Using this technique the wings can flap up and down at the same time as the whole body flits around the scene. This repeated flapping motion is a 'cycle'; other examples are the human walk cycle or the rotation of car wheels. In *Infini-D*, a cycle has to be repeated manually by copying and pasting the relevant eventmarks. In *StrataStudio Pro* cycles are created with a much simpler cycle tool.

The natural motion of a dragonfly is fairly jerky, so if you want the dragonfly to change direction, it can just negotiate a sharp angle, moving completely from one position to another in a flight path of just two straight lines. A larger object, such as an aeroplane or a car, would have to negotiate a curve to change direction. Then you would want the motion to be smoother, so the eventmarks can be linked using splines (also known as Bezier curves – like the curve tools in *FreeHand*) allowing smoothly curved motion paths. *Infini-D* defines these paths purely in

LATHE

Many relatively complex symmetrical shapes such as bottles, glasses and some chess pieces (pawns, bishops etc but not the knight!) can be created by drawing a profile and rotating it around an axis similar to a lathe – hence all the glasses and chess games in early computer art.

EXTRUSION

'Squeezing out', like toothpaste from its tube. The extrusion tool common to most programs enables you to define the profile of the hole in the nozzle of the tube.

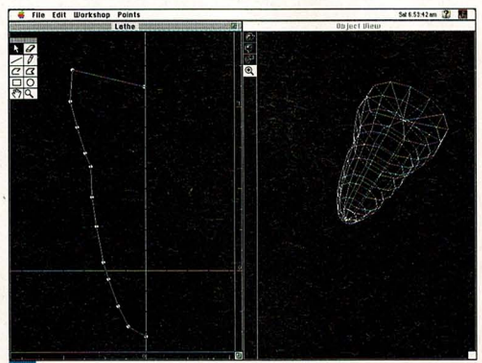
Continued on next page

ANIMATION IN *INFINI-D*

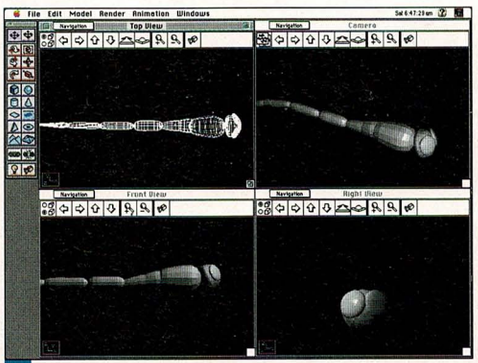
Creating a dragonfly

Here's how you'd construct and animate a moderately complex object to take advantage of the animation features in *Infini-D*.

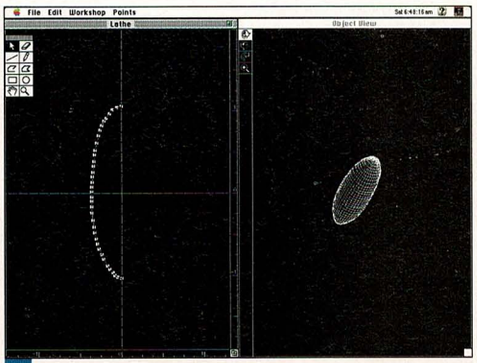
Continued on next page



1 Body Parts Construction
Most of the body parts for the DragonFly were constructed using Lathe objects. The points are selected and made smooth so that the final render is without facets or creases. Note that the cross section on the left is placed so that the crossing axes are centered at one end of the body. This is the pivot point when rotating or animating the articulated structure of the body.



2 Dragonfly Body
The body is assembled from the pieces created in the lathe workshop. Each body section is placed just overlapping the next so that it may be bent or rotated during animation. This builds up an articulated structure that works just as well with a finger or leg. The hierarchy starts with the first body section (the thorax). Below this is the head and the second body section (the abdomen).



3 Faceted eye Construction
The eyes are more lathed objects. To give them a faceted look the points are selected and made 'Sharp'. In this case the facets were made rather too small to see – although Dragonflies actually have 30,000, so they should have been even smaller really. But this would be wasted detail, taking up memory and extending rendering times.

ANIMATION ASSISTANTS

In addition to their 3D modelling tools, both *Infini-D* and *StrataStudio Pro* offer some specialised animation functions...

Infini-D

Most objects moving with purpose – birds, cars, insects, planes etc – will naturally align their 'noses' to the direction of motion. Computer animated objects will normally stay facing in the direction they were originally facing when created, unless they're told to do otherwise at each moment of the animation. This would be an extremely laborious task if done manually, but the Align assistant does the task automatically, so that the object is always facing the direction in which it is travelling, hence the name Align-Direction-to-Motion. While the dragonfly moves jerkily and can change direction in sharp angles, larger objects such as aeroplanes need to negotiate curves to change direction. Applying the Smooth Velocity assistant makes these changes into smooth curves automatically. For similar reasons, an aeroplane turning a corner also has to lean over or bank; the Auto-banking assistant will take care of this.

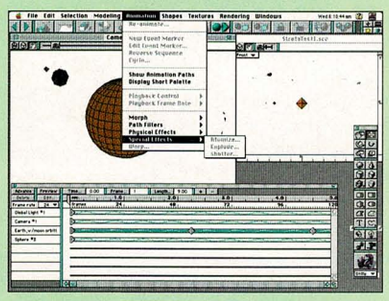
StrataStudio Pro

The Align-to-Path and Auto-Banking facilities in *Infini-D* are taken care of in *StrataStudio Pro* by one facility: the Align-to-Path Filter in the Animation menu.

Although it has no true collision detection, *StrataStudio Pro* assists falling and bouncing objects with its Bounce Filter. Using this, realistic looking bounces are created with a set number of rebounds, each with descending height (decaying rebound) and decreasing speed.

If you want an animated spotlight or camera to track a moving object, the Point-At Filter takes away all of the work by constantly re-aligning the camera or light during the animation.

Objects created with Metaballs are made up of a series of spheres. When animated the spheres can be moved apart, but as they separate the surface of each sphere is dragged out and thinned, as if the spheres are covered in glue, until they reach a certain distance apart when the shape of each snaps back to a true sphere, separate from each other.



StrataStudio Pro and *Infini-D* have very similar 'sequencer' interfaces. *Strata's* palette, lacking a familiar hierarchical display, can get a little confusing at times and is much less adaptable.

FREEFORM

A useful tool for creating asymmetric objects. Three views of the object – front, side and cross-section – are shown in the Freeform Editor. The cross-section's a bird's eye view of the object, showing the shape, but not the size, of the cross-section. This shape is symmetrical, but as your modelling progresses, the cross-section can change to an asymmetrical shape. Front and side views start off similar to each other, but end up any shape.

SPLINES

A series of points linked by lines so that the lines curve smoothly through each point. One form of splines is the Bezier curve that provides handles at each point to control the degree and direction of the curve. *FreeHand* and *Illustrator* use these a lot.

EVENTMARKS

In an animation sequencer, each change of the state of an object is marked by an eventmark. Selecting one of these enables you to modify the object's motion, position, size or surface texture at that point in the animation.

FLOCKING

Some 'objects', such as shoals of fish or even clouds, are lots of small elements that each move independently but within a defined distance from the centre of the group. This behaviour can be modelled in animation programs and is called flocking.

terms of the positions of objects at the key eventmarks. *StrataStudio Pro* and other animation programs allow actual lines to be drawn and used as motion paths, giving you very sophisticated choreography and control. Starting and stopping can also be made to accelerate and decelerate smoothly (ease-in and ease-out of motion) for a more realistic affect.

When a rubber ball bounces, it deforms slightly when it lands. You can simulate this effect with the resize tool by squashing it at the moment of impact. More complex shape transformations can create metamorphosis effects. In *Infini-D*, all objects are either pre-defined Primitives, Lathe Extrusion or Freeform objects constructed in dedicated modelling 'workshops'. Re-edit an animated object in its original construction workshop between one snapshot and the next and it will seem to 'morph' from the initial to the edited shape between eventmarks. Most programs have similar abilities. *StrataStudio Pro* uses an extension to its normal interface to add a 'morphing' capability.

Both *Infini-D* and *StrataStudio Pro* have a plug-in architecture, so the tools available can be extended (see the box above). As well as morphing, *StrataStudio Pro* can use Align-to-path, Point-at, Bounce, a sophisticated Warp tool and Metaballs. *Infini-D* has Align-Direction-to-Motion, Smooth Velocity, Spline Rotation and Auto Banking. The ability to add to the architecture of an animation program is very important: it means the program can keep up with changes in software technology and other developers can add functions not envisaged by the original developers. But sometimes it takes a completely new program to integrate the latest ideas together in an intuitive, flexible way. Good as they are, both *Infini-D* and *StrataStudio Pro* are beginning to feel a little dated in their animation facilities.

Movement is what distinguishes most forms of life from inanimate rocks and minerals. Often you can tell something is alive because it sets other, normally inanimate, objects in motion. But some of the subtlest and most beautiful movements are those of natural phenomena – the slow motion boiling of clouds, the folding flow of water, the seductive sway of trees in the wind. The style of motion of an object is what gives it much of its character, and the range of these movements is virtually infinite, so though computer animation can now simulate most of these effects to some degree, we can still only scratch the surface of these possibilities with Mac animation software.

As Macs become ever more powerful, and the software ever more sophisticated, who knows what levels of realism you'll be able to achieve? In this series, we've seen how you can use Mac 3D programs to build wire-frame models of objects,

ANIMATION IN *INFINI-D*

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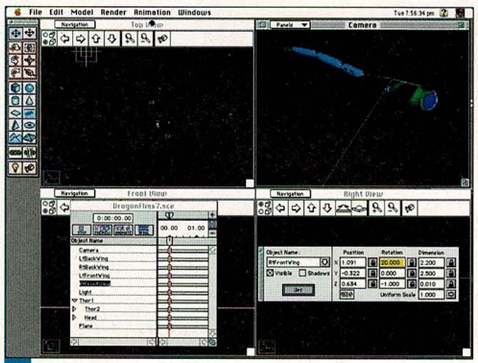
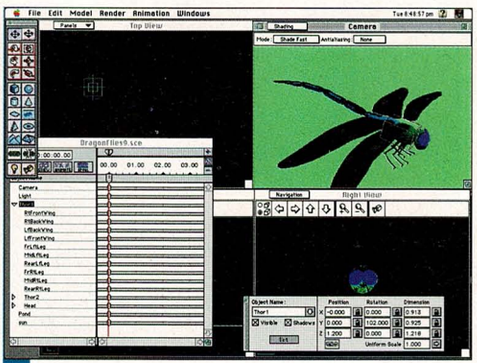
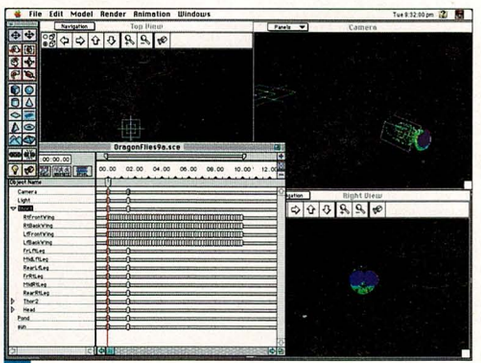


4 Wing Rotation
Here the wings have been added. Notice that they are still outside the body hierarchy. At this stage their rotational angles are fairly simple (yellow on the Object Palette) so moving them into position and rotating them is straightforward. Once they've moved into the main body structure, within the hierarchy, their position and rotation are no longer so simple to calculate.



5 Legs and Wing Cycles
The legs have been added and the wings are in the hierarchy so they're in sync. The wing beat's first cycle has been constructed. Place the wings horizontally and take the first Snapshot (Animation Menu). They're 'opposed', so rotate the front pair up to near vertical and the back pair down, but not into the body. Snapshot. Horizontal. Snapshot. Front down, back up. Snapshot.



6 Full Wing Cycle
The wings keep beating until the dragonfly rests on the flower. To do this, select all of the wingflap Eventmarks for the first cycle. Hold down the [Command] key and drag one of the right Eventmarks to the left, shortening the cycle time. Hold the [option] key, drag the leftmost eventmark to the right to copy the first cycle and align it as the second cycle. Repeat until the end.

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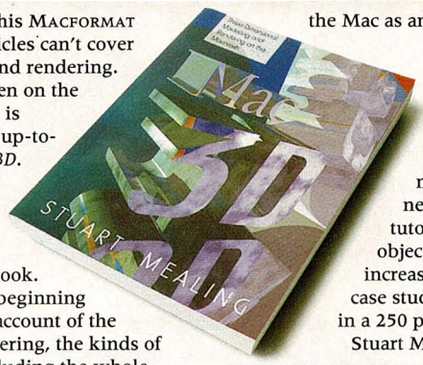

Brilliant and unmissable as this MACFORMAT series may have been, six articles can't cover all aspects of 3D modelling and rendering. Many books have been written on the subject, but the only one that is specific to the Mac and quite up-to-date is Stuart Mealing's *Mac 3D*. If you've read all this series and want more detail and a slightly more technical approach – or just a good reference work – check out this book.

Mac 3D covers everything, beginning with a very clear and useful account of the basics of modelling and rendering, the kinds of applications that use 3D (including the whole range from architecture and engineering to TV graphics and virtual reality), and fundamental concepts such as coordinates, splines and depth cueing. The chapter on using 'The Mac For Modelling and Rendering' gives a good overview of the Mac operating system, software and hardware.

Mac 3D's chapters are divided into numbered paragraphs in the style of some manuals and scientific textbooks. This makes it easy to find a general area of interest, but the pathetically short index can make finding a specific topic quite difficult.

The appendix on Modelling software applications is useful if you want to choose a medium priced program now, but the field is developing so fast that already most of the software featured is being superseded and in another year this section will make the book feel rather dated. Similarly, the 'MacTypical' chapter – which attempts to describe an imaginary package combining a range of features from many of the programs on the market – ends up describing *Infini-D*, a good beginners' system but hardly representative of the potential of the Mac as an innovative 3D engine.

One chapter could have been expanded – 'Case Studies'. Most newcomers to 3D computer graphics want to know what it can do for them; what they might find useful. All you need is a good set of simple tutorials constructing real world objects for popular applications to increase your understanding. These case studies are a start, but 13 pages in a 250 page book are just not enough.

Stuart Mealing is a lecturer in Computer Graphics at Cardiff and a research Fellow in Computer Science at the University of Exeter – he knows his stuff. The book is written in a rather academic style, much more formal than MACFORMAT's, but as a reference work everything you might wish to know is described in detail without too many technical complexities or formulae – unlike most other books on the subject. If you've enjoyed our series on 3D and want detail, *Mac 3D* is the best – indeed the only – choice.

Mac 3D – Three Dimensional Modelling and Rendering on the Macintosh by Stuart Mealing, ISBN 1-871516-46-3, costs £19.95 and is published by Intellect Books, 01392 475110.

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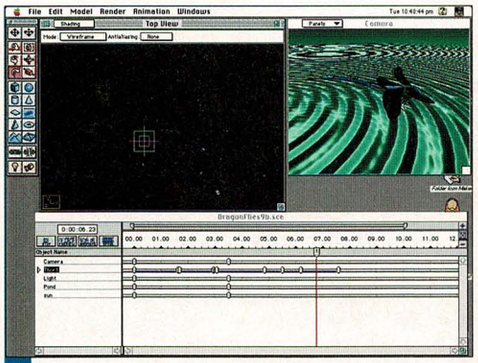
arrange and light complex scenes, and render the lot with rich textures and realistic surfaces. With a powerful enough Mac, and a lot of patience, you can create a picture of almost photographic realism – we've included examples on the MACFORMAT CD-ROM over the last few months. Adding motion is conceptually just a small step – it just takes a bit more processing power and a lot more time. Already games like *Marathon* generate quite impressive 'dynamic' 3D environments on the fly. Soon – maybe in only a matter of months, with the imminent arrival of QuickTime VR – you might be able to 'walk' through a fully interactive, realistic 3D world. On that day, your Mac really will have an extra dimension. **MF**

Where to get them

- Specular *Infini-D* costs £572.23. For more details contact Gomark on 0171 731 7930
- *StrataStudio Pro* costs £1,194.98. For more details contact Gomark on 0171 731 7930

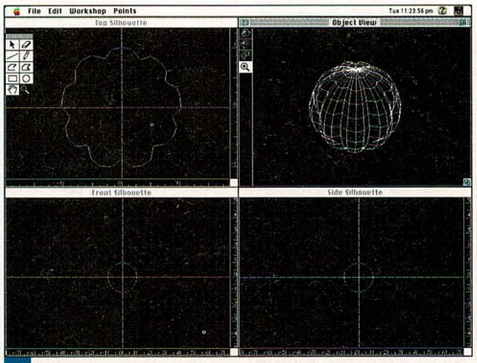
GET MOVING!

Stuart Mealing, author of *Mac 3D*, has also written a very readable book on computer-based animation. Titled *The Art and Science of Computer Animation*, it costs £24.95, published by Intellect Books, 01392 475110.



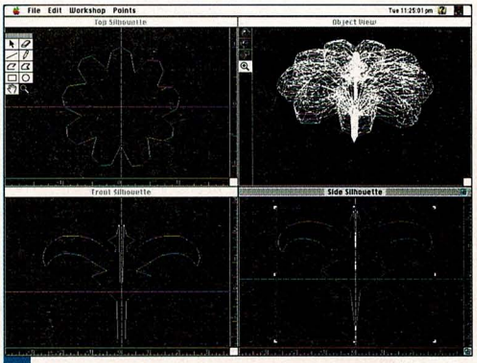
7 DFly Path

Infini-D doesn't show paths, but the Sequencer shows a series of eventmarks indicating the dragonfly's motion (the flight path's z shaped). At each point of the 'z' the dragonfly must both change direction and face in the new direction, so two eventmarks are required. If you only use one eventmark, the dragonfly will change direction but its body won't turn to face the correct way.



8 Lily opening Morph

The 'flower' is a freeform object placed at the very beginning of the sequence. The start shape is edited in the Freeform Workshop. Here it is a rather simple 'bud' shape and coloured plain green. The morphing process shows the bud transforming into a full bloom – a transition that can only be captured in real life with the lengthy process of time lapse photography.



9 Lily opening Morph - Freeform open

At the end of the animation the 'bud' has opened to a large pink flower – a classic 'morph'. Click on the first eventmark for the freeform, hold down the [option] key and drag to the final position along the timeline. At this point the Freeform Workshop is used to create a much more exotic shape for the final bloom and a new surface is added to create the colour transition.

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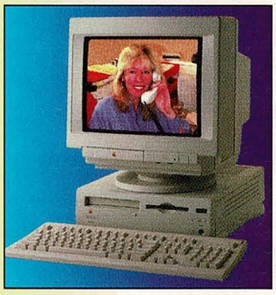

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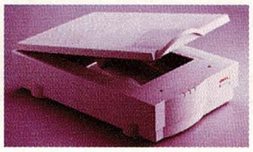

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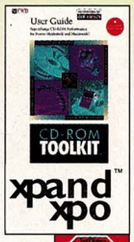

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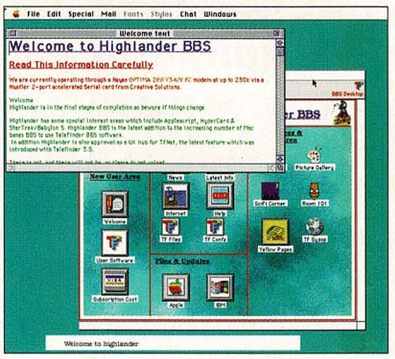
TeleFinder 3.5

Connect to bulletin boards, talk to the world via the Internet, or even set up your own BBS with the new version of *TeleFinder*. Ken Sutherland gives you the lowdown.

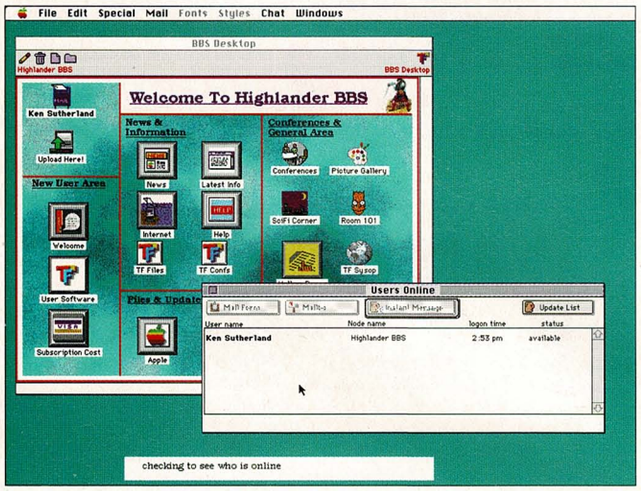


This is the familiar screen users of Highlander get when they connect to the BBS.

SYSOP
Stands for system operator. This is the person who sets up and administers a bulletin board.

At some point most computer users consider trying the brave new world of electronic communications (comms). They have heard tell of untold amounts of information on tap and the ability to send electronic letters (e-mails) to other like-minded people. The dilemma is that they are faced with a minefield of jargon and complex choices.

Originally, comms used to mean bulletin boards – independent set ups for the enthusiast. Then along came the Internet, a global-wide network of computers that started to make little bulletin boards look pretty redundant.



At any time when you are connected to Highlander, you can check to see if any other users are online and if so, you can send them instant messages.

The latest version of *TeleFinder* does two jobs. First, it enables you to connect to bulletin boards; second, it enables a bulletin board to connect to the Internet, giving you limited access to the Net. You need a computer, a modem, and the *TeleFinder/User* software which is free from bulletin boards (it's also on the MACFORMAT CD this issue).

The *TeleFinder/User* software gives you a simple to use graphical program and has the look and feel of the Mac's Desktop. In fact, *TeleFinder* supports Drag and Drop if you have System 7.5. This means that you can now drag files directly from the BBS onto your hard disk to download (copy) them: no typing in the mysterious commands required by some software.

The program does all the work for you when you are connected to your BBS. The *TeleFinder/User* software handles all your electronic mail, conference exchanges and all your file transfer requirements in one program.

There are currently around one million users connecting to a TeleFinder BBS somewhere in the world today.

So *TeleFinder* makes it easy, but why use a BBS and what benefits do you get? Perhaps the most important thing is e-mail, the facility to send electronic messages to just about anyone else with a modem, via the Internet.

The second is the conference areas. These areas are the heart of the BBS and this is usually where you will find lots of interesting discussions covering just about any topic you care to think of. *TeleFinder* BBSs like my own *TeleFinder* BBS, Highlander, share conference areas with other BBSs, giving a much wider input to the topics. There are currently around one million users connecting to many *TeleFinder* BBSs in the world today.

Finally, you may want to check out a BBS's software areas. They contain the latest updates, demo and shareware. At Highlander I currently have over 1Gb (1,000 megabytes) of software on the board and this area is constantly being updated. When Apple released the System 7.5 Update, Highlander was one of the first BBSs to make it available for download in the UK – and it proved to be extremely popular.

So if you want to send e-mail via the Internet, why not connect directly and skip the middle man? The main difference is that connecting to a BBS is easy and only involves you having to configure one program (the *TeleFinder/User* software), compared to the more complicated set-up required for a direct Internet connection. With a direct connection you first need to decide how you connect to your service provider – namely, by PPP or Slip. After sorting out your connection you need to run several programs to get the same services a BBS has and each program will need its individual preferences set up. Typically you will need a mail program to get your mail, a news browser to get your conference news and an ftp program so that you can get your

HIGHLANDER BBS FREE TRIAL

WHO'S KEN?
Ken Sutherland runs his own *TeleFinder* bulletin board up in Glasgow, hence the name Highlander.

Why not try *TeleFinder* for yourself? MACFORMAT has arranged for readers to have a free account on Highlander BBS for a month to try out *TeleFinder's* new features. The user software and custom settings file for Highlander can be found on this month's CD. To use the software, drag the Highlander icon onto the *TeleFinder/User* program, and it will launch. All you need to do is select the modem you use. *TeleFinder* supports over 200 different modems and if your modem isn't listed there is also a customising feature to cater for non-standard modems. If you have any problems phone Highlander on 0141 881 1399 after 6pm.

To register on Highlander and get your month's free access, please change the Guest name and password to your own name and when you connect, Highlander will automatically ask you to register. In the Special Interests section just enter the magic word 'MacFormat' and your account will be active, it's as simple as that. Once you are registered you will have access to the full e-mail facilities of the board, allowing you to send e-mail to other users and also exchange e-mail with other people on the Internet. You can also check out the information and news sections of the BBS. Why not have a look around the conference areas? There's always something of interest going on and this area is being updated constantly from around the world. The file areas contain over 1Gb of shareware, demos and updates. If you can't find what you're looking for, ask, and we will try to get it for you. Have fun!

Highlander has over 200 active conference areas that are updated daily and cover a wide range of interests. If you can't find one then start your own, it's that simple.

The initial step in connecting to the BBS for the first time is just entering a password and a user name of your choice.

This is an example of the information required to get your free access to Highlander.

files, updates and demos from remote sites. Confused? Well, the Internet is a confusing place, but using *TeleFinder* to access it makes life easier.

You don't have full access to the Internet though. Generally, you only have e-mail access, but although you can't download software from the Internet, you can request the sysop to download it for you. You also don't have access to the WWW (World Wide Web), one of the main sources of information, but that will change in future versions of *TeleFinder*.

How to connect to the BBS

The first step is to get the software up and running. When you first launch the user software, you need to set up the settings file. The first entry should be your user name and a password, then you select your modem type (*TeleFinder* currently supports over 200 different models) and that's about as complicated as it gets in terms of configuration.

The next step is connecting and registering. Now that the setting file is configured, press the **Connect** button to dial up the BBS. Once you have connected to the *TeleFinder* BBS, the log-on to the system starts. As you are a new user, the BBS will ask you to register. This is straightforward as all you're asked for is your name, address, phone number and a wee bit about yourself and that's it. Now that you're registered, the BBS Desktop is shown to you. Each area has a distinctive icon representing its function, be it e-mail, board information, latest news, conference areas or the file areas.

It's that simple. Now you are up and running it's time to explore. No two BBSs are the same, because each BBS has its own specialist areas. Highlander covers most areas in detail but also has a large amount of system related information, as that's my speciality in system support. Alternative sites to try are MacJungle and Electronic Courier. Details about these sites are available from Highlander.

TeleFinder 3.5 - What's new

With the release of *TeleFinder 3.5*, existing sysops have a host of new and updated features to please their users and encourage more people to join in the fun.

New to *TeleFinder* is a feature known as TFNet, which gives existing *TeleFinder* BBSs the facility to exchange mail between other BBSs, the Internet and beyond. You can also share common conference message areas between boards.

The new MailServer also provides support for multiple names in the To field when sending messages, which enables you to send the same e-mail to a group of people at the same time. Soon you'll also be able to send and receive e-mails using *QuickMail* or *MSMail* via *TeleFinder*.

There is also a connection tool being developed that will allow e-mail exchange between *TeleFinder* and *First Class*, another BBS system, which at present cannot talk to each other.

Several new connection tools have also been released giving even more accessible ways to get connected to your BBS and also enabling the sysop to offer more ways to connect. ISDN is the new digital telephone system being installed world wide which requires special telephone lines and communication cards that fit inside your computer. *TeleFinder* is fully compatible with this system, allowing much faster communication, because ISDN enables you to transfer data four times faster than a 28,800 bps modem, the fastest currently available.

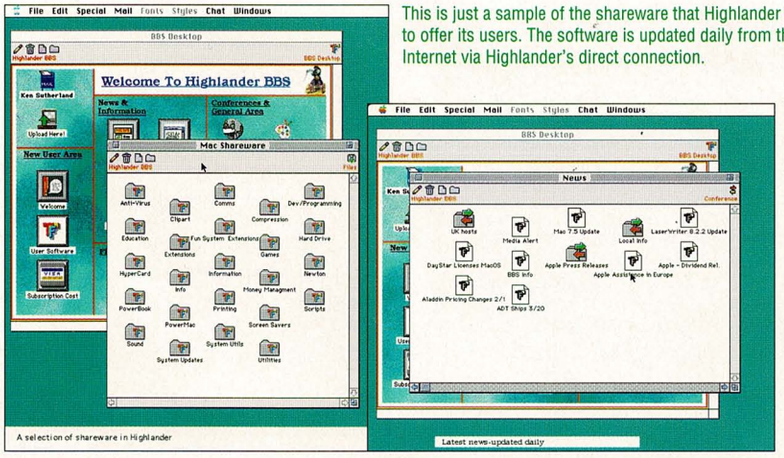
Newspapers in particular have been very quick to take advantage of this and now several UK based newspapers run very large multi-line BBSs allowing access

OTHER WAYS

You don't have to use *TeleFinder's* user software to connect to a *TeleFinder* BBS. You could use the more common terminal software such as *ZTerm* or *Microphone*, but to get the most from your BBS it's recommended that you use the *TeleFinder/User* software.

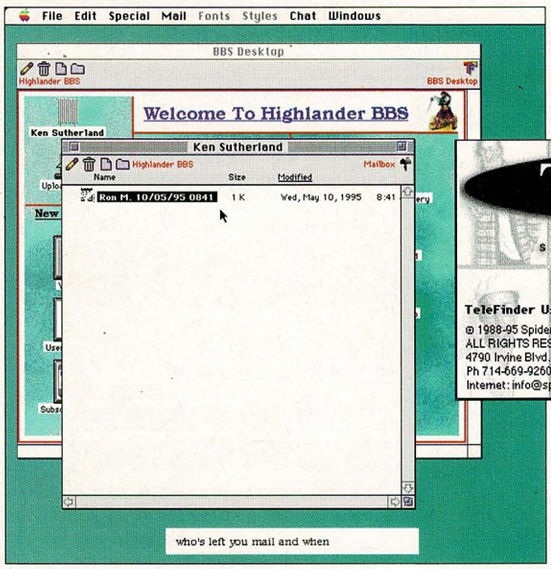
Continued on next page

This is just a sample of the shareware that Highlander has to offer its users. The software is updated daily from the Internet via Highlander's direct connection.



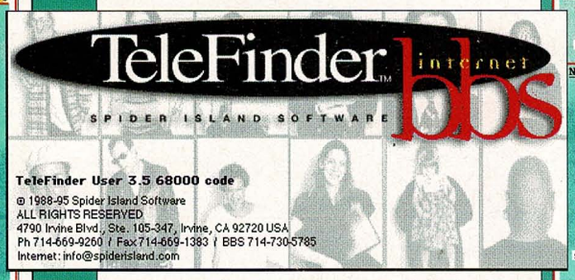
Catch up on what's happening in the world. This area is updated twice daily.

Check out the Internet section for all the latest news events. If you look closely you might find a bonus offer.


File Edit Special Mail Fonts Styles Chat Windows
BBS Desktop
Welcome To Highlander BBS
Ken Sutherland
Name Size Modified
Ron M. 10/05/95 0841 1 K Wed, May 10, 1995 8:41
who's left you mail and when

Time to check who has sent you e-mail and when. Remember, if it is in bold type you haven't read it yet.

This area contains all the user needs in terms of getting the most from Highlander. Regular checking of the User section is recommended.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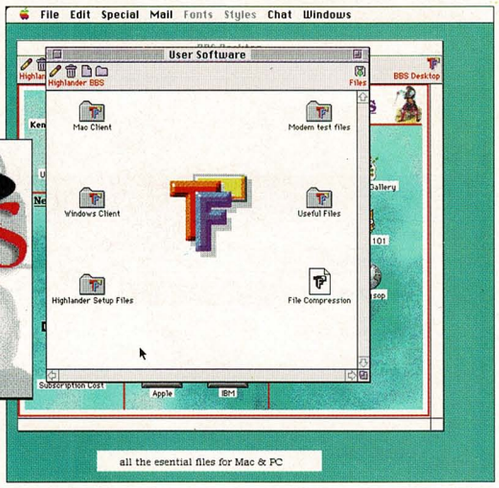
Ph 714-669-9260 / Fax 714-669-1383 / BBS 714-730-5785
Internet: info@spiderisland.com

This is the splash screen used by SpiderIsland when you launch *TeleFinder/User* software.



via dial-up modem, ISDN and also the Internet. Each BBS runs between 10 and 30 separate lines, enabling news, articles and photographs from all over the world to be easilyand conveniently uploaded to the newspaper for publication.

The most visible (and audible) new feature is the customisation capability in *TeleFinder 3.5*. This new feature enables the sysop to alter the way the user sees the BBS. You can add graphic backgrounds, custom icons and sounds to create your own look and feel for your BBS. As you can see from the screen shots of Highlander, the setting file can really change the look of your BBS and the look depends on what the sysop wants.

TeleFinder and its costs

So you're interested in *TeleFinder* and maybe fancy running your own BBS? Well it's time to bite the bullet and find out what you need and the costs involved. If you want to set up your own BBS offering e-mail, conferencing and shareware, then the *TeleFinder* BBS software is going to cost you £702.65. The price is high, but once you're up and running you don't have any other costs to worry about, unlike other systems which charge you for increasing the number of users on your system. There are also substantial discounts for education and recognised user groups.

The user software is free and can be distributed as shareware. You can also find it on this month's MACFORMAT CD-ROM, already configured for you to connect to Highlander BBS. There is an enhanced version of the user software called *TeleFinder Professional*, which has all the features of the user software and more, with a terminal emulator built into the program which supports both VT100 and ANSI terminal modes and allows off-line e-mail and conference facilities. The software is shareware and costs just £10. Serious users of the BBS will find the added features of benefit, but otherwise you don't need it.

FirstClass, which is the main competitor to *TeleFinder*, is not quite as generous. The initial cost is attractive but be careful, as the number of users you can have registered is limited by your user license. As your BBS grows with time, your number of users increases and you will need to buy a larger user licence, which is not cheap. For more details contact Euro-Source, the UK distributor of *FirstClass*, on 0181 561 1993.

TeleFinder is compatible with the latest digital phone system, so you can transfer data four times faster than the fastest modem.

Future plans

In the near future, *TeleFinder* will have improved e-mail with the addition of file attachments. This enables you to send someone a program or file attached to a standard e-mail message. SpiderIsland, the creators of *TeleFinder*, plan to use this feature to speed up worldwide distribution of updates of their own software.

The MailServer is also being upgraded to include an SMTP mail server. This is specifically used for Internet support in the transfer of e-mail and will speed up the process. The MailServer will also support POP3 e-mail standards which are required for future development.

Improvements in picture preview will include a contact sheet mask, which will allow you to view pictures stored on the BBS more quickly. There are some more exciting features to come that we're not allowed to release until around the end of 1995, but they're going to blow your mind! Just keep your eye on MACFORMAT for more news. **MF**

ONLINE MUSIC

An exciting new *TeleFinder* site is run by MLT Music on BBS 0181 964 8223. It contains tons of music information and samples.

ZTERM

This is the most widely used shareware comms program, enabling you to use your modem to contact BBS's. *ZTerm* is command line driven, rather than graphic, so you have to type in commands instead of clicking on icons.

FIRSTCLASS

Quite widely used, *FirstClass* is a comms program (like *TeleFinder*) for combining e-mail, file sharing and conferencing. Requiring a Mac Plus or better, it can be used as a BBS and accommodate up to 100 simultaneous network connections and 22 concurrent modem users.

TELEFINDER – WHAT YOU GET

All the packages include the following:

- Macintosh Server (2 lines)
- Macintosh Client (unlimited users)
- Windows Client (unlimited users)
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- Internet (TCP/IP) access module (Mac and Windows)
- AppleTalk access module (Macintosh only via ADSP)
- Internet Domain Name
- TFNet Membership

Additional lines can be purchased up to and including unlimited lines/Nodes.

TELEFINDER 3.5

Price: £702.65. Out: now.
Requires: Mac SE/30 or better, System 7, 8Mb free RAM.
For more details contact the UK Distributor AM Micro on 01392 426473 (BBS 01392 493651) or Highlander BBS on 0141 881 1399.

FEATURES 89%
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For your information

If you need to store any sort of data then you'd be better off using a database than scraps of paper in a bulging filofax. In a new series, John Lewis shows you how to get started.

One of the most useful tools which the computer offers you is the database, though many people never actually get around to using it. There's an old saying that data is no use until it is converted into information – and that essentially is what a database does. It takes the stuff you put in, sorts and organises it for you and then spits it out in a form that can be used.

Most people think in terms of storing names, addresses and other personal attributes but in fact almost anything can be stored in a database. Stamp and coin collections can be catalogued efficiently; library information for books, CDs and videos is much more accessible than on cards; you can keep track of your golf scores or your football team's results; manage your travel expenses or your stock portfolio; store your recipes and even check up on what you gave your guests last time they came. The range of things you can use a database for is almost endless. In commerce they are used for staff records, calculating salaries, stock

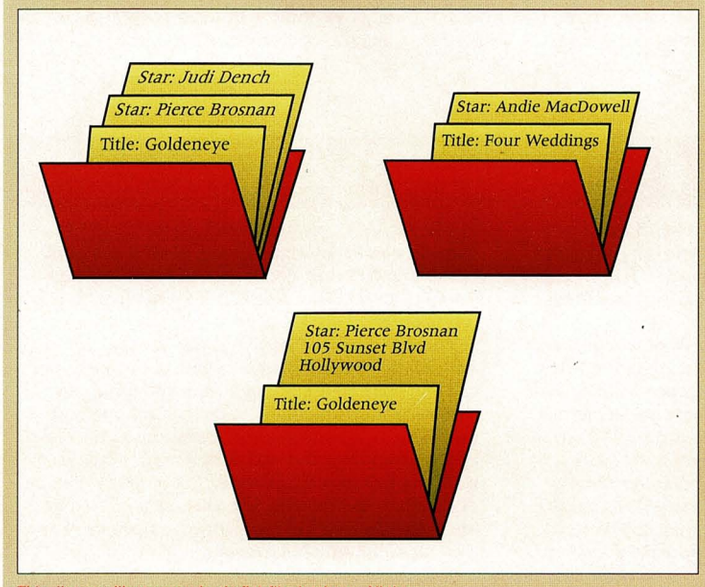
Continued on next page

DATABASE BASICS – BEGINNERS START HERE!

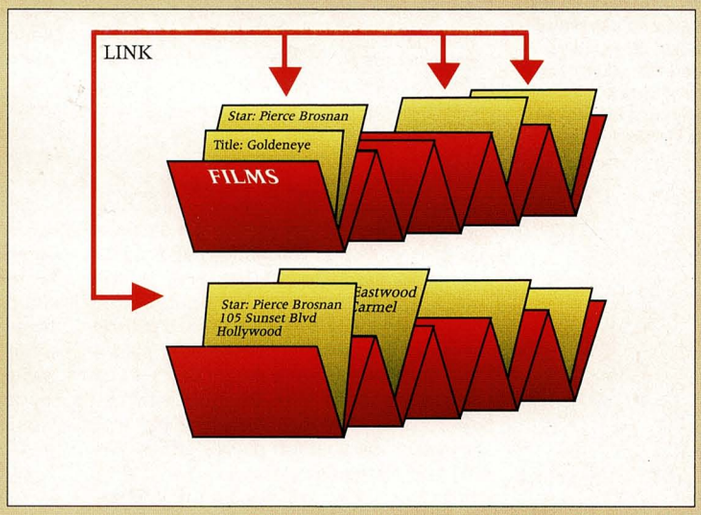
Imagine that you are collecting information about films. You would want to record the name of each film, its director and main stars, plus a precis of the plot and running time. All these individual bits of information are called 'fields', and when put together they form a 'record' for that particular film. So each database comprises a number of different records which contain fields detailing specific data for that record alone. You could think in terms of a filing cabinet in which each film has been given its own file (the record) and all the information for that film (each separate field) is put within that particular file.

To find out about a specific film all you have to do is to pull its file out of the drawer – in the database you retrieve that record and the information is there in the fields. The strength of a database though is that you can quickly produce a list of all the films a particular actor has starred in, since the database itself will sort through all the fields and only select the records containing the information you require. You could make it more complicated and ask it to find films in which the actor worked with a particular director. This would be quite a laborious task with the paper based method but very easy with a database.

This sort of database is a 'flat file' database since all the information relates to one particular topic – there are no branches off or jumps to other databases for additional information.



This diagram illustrates a basic flat-file database. All the information about a particular film is stored in one file.



This diagram illustrates a relational database. The personal info is in a separate database linked to the films database.

Let's suppose though that the reason you kept this film database is because you are a film producer. You would also need to keep information about each of the directors and actors as well, so that you could contact them if you were planning a new film. At the very least you'd need their addresses and phone numbers. Now, it would be possible to keep this information along with all the other stuff in each separate film record. But that would mean the same data would have to be repeated in each record and it would be difficult to update the database if an actor or director moved home, died or whatever. You'd have to go through each record and change the information, with the possibility that you might miss one, and you'd also be taking up additional space on your hard disk.

It would be much better to keep the personal information in a separate database which was linked to the film database, so that when a particular record was opened the film database could look up the necessary information from the personal database. A database which can transfer information between different flat databases in this way is said to be 'relational'. The term comes from the mathematical theory used to describe the way a database works and has nothing to do with the fact that they are related to each other (though it does help to think of it in this way).

Super QuickDex and *ClarisWorks* are good examples of flat file databases on the Mac. *Helix Express* is fully relational, and *FileMaker Pro* is semi-relational – though a fully-relational version has recently been announced. Watch this space!

MULTI-USER SETUPS

As well as relational links between different databases on the same Mac, you could have an office with several users on different machines needing access to a database. You could have a separate copy of the database on each Mac, but keeping these synchronised would become a nightmare. In this case the ideal is a multi-user database where all the data is kept in one place but can be accessed over the office network.

Both *FileMaker Pro* and *Helix Express* offer this facility, but in different ways. *FileMaker Pro* enables several users, each with their own copy of the program, to access a Host database as Guests. The first copy on the network to open up becomes the Host. Alternatively, several users can access a central Server running the program – normally a standalone Mac that's not used for much else – as Clients.

This second approach is also taken by *Helix Express*. The advantage is that this method is quicker and each Client doesn't need a separate copy of the program, but you do need a separate Mac to act as a Server. Like any multi-user program, the Server is normally licensed for a given number of Clients, and if you need to give more users access to it you will need to buy more licences.

control and accounting; dig deep enough in most commercial software and most likely you will find a database engine doing the hard work.

Over the next few issues we will be looking at databases and how they can be used on the Mac. We will be explaining the terminology and exploring the principles common to the whole range of database programs, so you feel confident about setting up a database to meet your own particular needs. For the basics, start with the box on the previous page.

AND THERE'S MORE

In next month's MACFORMAT we will be seeing how a simple name and address database can be produced in *Claris Works*, *FileMaker* and *Helix Express*.

Making it work

Before you even start building a database you need to ask yourself: what are you going to use it for? What data do you need to capture? Who will be using the database? It is at this stage when I usually go into pencil and paper mode to plan it out and I would recommend that you do the same, rather than jumping in at the deep end and hoping. This planning stage becomes even more crucial when you start on relational databases.

To start off we will build a simple database to record personal details of friends and the only person likely to use the database is yourself. This latter part is very important since if other people are going to be using it a lot more care has to be taken with interface design and validation. You have to make sure that things are entered correctly – for example that the Post Code is in capitals, that the right information goes into the correct fields and that records can't be deleted without due checks. When producing a professional database it is this third stage that often takes much more time than the rest of the design.

My general rule of thumb is that you can't have too much data – one day it may come in useful. There is no need to get too paranoid about actually getting all the data, it is just that you should leave space for it should it become available. At the very minimum for a name and address you need space to record the following information:

Title
First name
Middle name or initials
Salutation
Last name
Honours
Address 1
Address 2
Address 3
Town
County
Post Code
Home Phone

Just to explain why some of the fields are included. A decreasing number of people feel very strongly that they should be properly addressed and the Title and Honours fields ensure that they are kept happy. Some people are known by something totally different from their first name, so to enable these to be recorded, we incorporate a Salutation field (which would be used in correspondence). I find that having three address fields is normally sufficient to cater for the rich diversity of British addresses. It is in this area that templates from the US fall down since they only usually provide space for one Street Address and their Zip Code format is different from our Post Code.

You may come across databases where all the address bits are contained within one large field. The one big field approach can have the edge when you're producing labels, but individual fields may enable you to find addresses for, say, a particular Post Code more easily. For now though we will use separate fields. If you are likely to be dealing with people overseas then a Country field is required. Note that the layout of addresses overseas is not necessarily the same as ours, and you may need to take this into consideration when printing labels, for example.

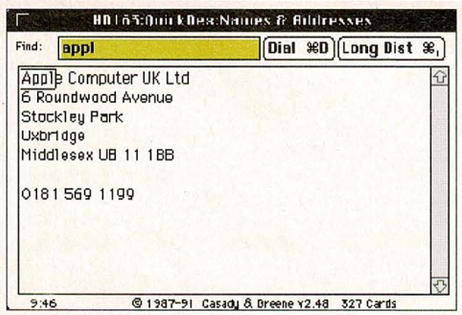
You might want to add more phone number fields too. Here we only have a home phone, but people may well have a fax, a mobile and an e-mail address, plus equivalents at work. Then there is other personal information such as birthdays, names of partners and their kids, dietary needs, and whether they sent you a Christmas card last year. If you are dealing with them in a business capacity then you'll need Job Title and Company name as well. Now can you see why I recommend that you plan exactly what you need to record?

On the fly

The major advantage of designing and building your own database is that it enables you to work the way you want to. If you buy a ready-made database then you are constrained by the way its designer feels you should work. With the databases we'll be using as examples, it is very easy to go in and change the structure on the fly. If you suddenly decide you want to add a new field, you can do so straight away, and it is there ready for you to put data into – you don't even have to recompile the database before it can be used.

Next month, we'll explore the workings of some common programs, including the database in *ClarisWorks*. **MF**

A SIMPLE DATABSE IN SUPER QUICKDEX



It is possible to produce a simple flat database in *Super QuickDex*. This is a flat, free form database which consists solely of records without any predefined fields. It is a sort of electronic Rolodex, and the original version owed a lot to Bill Atkinson, one of the early Mac pioneers who also gave us *HyperCard*. A simple metaphor is basically that of a small card which contains the information you require.

To find any information you want, you just type the keyword – all or part of it – in the Find box and hit [return]. The first occurrence will be found wherever it is in the record. If it is not the record you want, just keep hitting [return].

QuickDex may seem to be pretty basic so far, but it is smart in as much as it will dial the phone number for you, either through the Mac's speaker (if you have a tone-dial phone, just hold the mouthpiece near the speaker) or using a modem attached to the serial port. All you do is hit Dial and it searches until it finds what seems to be a phone number and then dials it.

Alternatively, you can highlight the number manually and Dial that. You can also have a number of different card decks open at once, and time-stamp cards so that a record is kept of when you call people.

The drawbacks of *Super QuickDex* are that you can't easily produce printouts and sort records; nor can you mail-merge (though copy and paste can overcome this limitation). Also the card size and format are fixed and not user-changeable. However, the program is fast and does the job of an electronic card system excellently. The original version of *QuickDex* was literally just a single card system but now scrolling has been added, so you can keep a lot more information to hand.

■ *Super QuickDex* costs £93.99. For more details, contact Softline on 0181 401 1234.

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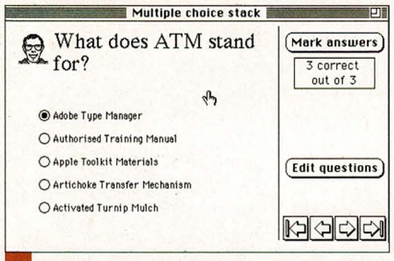
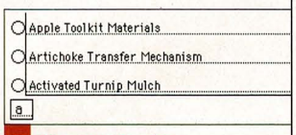
Make your choice

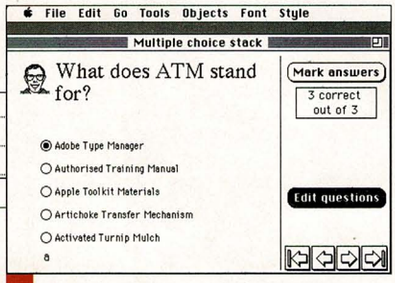
HyperCard isn't just a tool for handing out information – it can also absorb it, analyse it and return valuable statistics. Rod Lawton writes a multiple-choice stack to show you how.



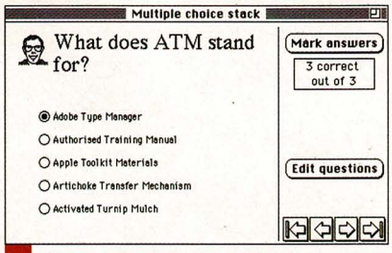
1 Our multiple-choice stack enables you to choose one of five replies. Each card has a different question and you can add as many cards as you like.



2 You need an extra, 'secret', field to store the correct answer in, so that you can check responses to the questions.



3 Our multiple-choice stack's 'edit' mode. The menu bar is visible, you can edit both questions and answers, and you can both see and edit the field containing the correct reply.



4 And now the stack in 'browse' mode. Users can't fiddle with the menus, or with the questions and answers – and the field containing the correct answer has been hidden.

SYMBOLISM

The symbol '¬' in the scripts on these pages means that the text should run as one continuous line.

HyperCard is much more than just a multimedia presentation package. It's great for teaching you about new subjects, but it's also able to test how much you've taken in. And the simplest way of doing this is with multiple-choice questions.

This month we look at a little stack that can collate replies to give you a score. You can add any number of questions to it at will without affecting the way it works, and it can be used for any subject. With luck, you'll find it useful in its own right, but this multiple-choice stack also illustrates two very handy *HyperCard* techniques – gathering statistics and creating stacks that work in more than one 'mode'.

All the cards in the stack can share the same background, and the structure of this shared background is pretty straightforward. Beyond having a field for the questions and one for the possible answers, you're obviously going to need a button for each answer. If you're using *HyperCard 2.2*, make sure they're in a single family. If you're using an earlier version, you'll have to write a short routine to prevent more than one of these buttons being highlighted at once.

Okay, so now you can mark your chosen answer. We now need to build in the ability to check all your answers, and this is where we need to get crafty. For a start, we can't check the replies unless the right answer is stored somewhere on the card. To do this we need another field which is usually hidden and we can put this under the list of possible answers.

Once we have a way of comparing the user's response with the correct answer, we can create a button to check the responses and put the results into a field to give a score. See the 'Gathering and analysing stats' box on the next page to see this script. The score is then quoted as the number of correct replies out of the total number of questions.

By now, our multiple-choice stack has pretty well taken shape. There is one more thing to be taken care of, though. On the one hand, we want to be able to type in questions and answers and to be able to insert the correct letter in our 'hidden' field. On the other, when people are using our stack, we don't want them to be able to edit the questions and answers, or to be able to see the correct answer. With a short but cleverly-written script it's possible to have a stack which

YOUR HYPERCARD QUERIES ANSWERED...

MACFORMAT reader Les Cornwell has written in from Belgium with a slight problem:

'As a HyperCard *freak since 1988, I collect all kinds of stuff in this highly versatile program. Especially for my kids, who now and then need an illustration for school, I've developed several dedicated stacks containing hundreds of pictures of people, animals etc. Each card contains one illustration, while one (background) field briefly describes the contents of the card. With a script I developed myself, all 'titles' are collected on a (card) field on card 1, and one click on any line in this field immediately displays the desired card. There is one problem, though. When I click on the word 'nurse', I'm taken to the card containing 'doctor, nurse' instead of to the card containing 'nurse' alone. Does anyone know how to solve this problem?'*

Well, I've taken a look at the script attached to the index field, and it's a very sharp little piece of HyperTalk programming which Les explains was originally penned by another stack developer, Marc Christopher:

```
on mouseDown
 get clickLine()
 put line it of me into name
 find (name) in bg field "Dutch"
end mouseDown
```

It's neat, because it gets the full text of the clicked-on line (not just the clicked-on word) and then finds it in the background field which contains the card titles (*HyperCard's* find function is very fast).

However, this is the problem. You're looking for a word or phrase which may well be a sub-set of a larger piece of text. What you really want to do here is not find this text in a card title, but match it to the card title. I can see two ways of doing this:

1. Without changing the existing cards you could use the following adaptation:

```
on mouseDown
```

Gathering and analysing stats from your victims' responses...

HyperCard is very good at letting you gather information and then analysing it. In the case of our multiple choice stack, we're going to check every card to see if the chosen answer matches the correct one. This was a very simple script to write, and it goes like this:

```
on mouseUp
 put 0 into correct
 repeat with i=1 to the number of cards
  if the hilite of background button¬
  (field "correct" of card i) of card i¬
  is true then add 1 to correct
 end repeat
 put correct & " correct out of " & ¬
 the number of cards into field ¬
 "results"
end mouseUp
```

This script is based around a repeat structure which starts from the first card in the stack and works through to the end. On each card it checks to see if the radio button corresponding to the right answer is highlighted. If it is, the script adds 1 to the variable 'correct', which is initially set to 0. By the time the last card is reached, the script has added up all the correct answers. The repeat loop now finishes and a message is put into the field 'results' which compares the number of correct answers with the number of cards, to say you got 15 right out of 20, for example.

This is a pretty basic example of how you can write scripts to analyse information. Working with a similar repeat structure, you could analyse all sorts of data in all sorts of stacks. You might have carried out a market survey and collected together a great pile of completed survey forms. If so, you can create a stack with a background that looks similar to the original form (just to make entering the data easier).

Replies to multiple-choice questions can be filled with check-boxes. Once you've keyed in all the data, analysing it is pretty easy. With a smidgen of HyperTalk knowledge you can compare and contrast any stats you like.

Not only that, but it works, too. I created just such a stack to analyse a reader survey I carried out as editor of a little magazine called *Amstrad Action*. When the data had been typed in, it was possible to find out in seconds, for example, just how many Amstrad owners had printers; how many 16 to 18 year-olds played computer games; what percentage of readers with word processing programs were in full-time employment; and just about any other permutation of data.

It's perfectly possible to write these scripts as and when you need them, because they all have the same basic structure, and would typically go something like this:

```
put empty into matches
repeat with i=1 to the number of cards
 if the hilite of background button ¬
 "16-18" is true and the hilite of ¬
 background button "games" is true then ¬
 add 1 to matches
end repeat
put matches*100/the number of cards & ¬
"% of Amstrad owners are 16-18-year-old ¬
games players" into msg box
```

And that is the real beauty of *HyperCard* – once the information has been entered it's very easy to extract whatever statistics you need, whenever you need them, for whatever nefarious purpose...

switches between a fully-editable 'development' mode and a foolproof, no-interference 'browsing' mode.

Dual modes

When you're adding questions to this multiple-choice stack, you'll have to be able to edit the questions and answers fields and also indicate which of the answers is the correct one. Yet you don't want the end user to be able to fiddle with the text or see the answer. You really need two modes: an 'editing' mode and a 'browsing' mode. This is remarkably easy to engineer in *HyperCard*.

It all starts with a simple button – the 'Edit questions' button. When you click on this, a whole series of things happen, depending whether the button was highlighted or not. Here's the script:

```
on mouseUp
put the hilite of me into notit
 set the hilite of me to not the¬
 hilite of me
 get the hilite of me
 set the visible of menubar to it
 set the locktext of field ¬
 "question" to notit
 set the locktext of field ¬
 "answers" to notit
 set the visible of field ¬
 "correct" to it
end mouseUp
```

When editing is switched 'on', the menubar is displayed, the questions and answers fields are unlocked and the field containing the correct answer is shown. When editing is switched 'off', the questions and answers fields are locked, and correct answer is hidden and to make the stack foolproof the menubar is hidden.

The above script is written to be compact, so you might need to look at it for a few minutes to work out what's happening with the 'notit' and 'it' variables. Once you've grasped the principle, though, you'll be able to write similar scripts that let your stacks work in two or more, very different modes.

For real security, it wouldn't be too hard to add passwords, either, with the 'ask password' command...

Plight of the navigator

There's not too much to be done to our stack now, except to add a row of navigation buttons to take you from – in order from left to right – the first card of the stack, the previous card, the next card, and the last card.

This stack design can be used as a template for questions on any subject, and it can be laid out any way you like. The key thing is that it's easy and flexible to work with, and can be added to indefinitely – with nothing more complex than a new card for every additional question – without upsetting any of the scripts.

There are lots of pieces of Mac software that teach you new things in a colourful and spectacular fashion, but *HyperCard* is unique in its ability to interact with users and to assemble and analyse information that they type in. **MF**

NEXT MONTH

This month we were hoping to bring you the definitive head-to-head between *HyperCard* and *SuperCard*. However, we now know that *HyperCard version 2.3*, which is on the way, contains some major improvements – notably the incorporation of colour paint tools. We haven't the slightest intention of 'reviewing' a product we haven't seen, so we've decided to hang on until we have a copy. And from the advance information coming our way, we can't wait... Watch this space!

```
 get clickLine()
 put line it of me into name
 repeat with i=2 to the number of cards
  if bgfield "Dutch"=name then go card i
 end repeat
end mouseDown
```

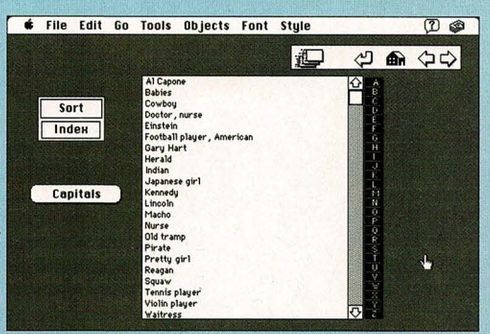
2. There is a more efficient solution, though. First of all, you need to set the card names to the contents of bg field "Dutch":

```
repeat with i=2 to the number of cards
 set the name of card i to bg field ¬
 "Dutch" of card i
end repeat
```

Then, attach this script to the 'index' field"

```
on mouseDown
 get clickLine()
 go card line it of me
 find (name) in bg field "Dutch"
end mouseDown
```

I hope that's useful, Les!



How do you match names in an index with specific cards? And what occupation/name were we going to use for 'x'?

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Mac misbehaving? Ghosts in your machine? Don't panic! The MacBusters are here to help, and no, they don't break Macs...

Welcome once again to Mac Answers, the section of the magazine where we try to solve your Mac related problems. This month, MacBusters Philip Jones, Jim Chandler, Stuart McHugh and Derek Smith have the answers. If you are having trouble, use the form on page 78 to tell us all about it. Please note that we are unable to answer queries over the phone, as time just doesn't allow.

Give us a speech

SOFTWARE

I have recently installed a Geoport adaptor and have discovered that to take advantage of the AV I need Apple Speech Manager. *How do I get hold of a version of this? Could I have missed an upgrade on* MACFORMAT'S *CDs?*

MMJ Bowles
Rochester, Kent

A Geoport adaptor, for those that don't know, is a communications device that attaches your Mac to the telephone system without a modem. In answer to your question, you wouldn't get a copy of *Speech Manager* – or *Sound Manager 3*, which several people have enquired after – from MACFORMAT: they are both copyrighted Apple software, and not the shareware that we usually distribute.

But you don't need to buy *Speech Manager* or *Sound Manager 3* – you just need to know where to get them. They're available on AppleLink, Apple's on-line service. Alternatively, if your local Apple dealer is obliging, he might copy what you want onto a disk for you. While you are at it, you might also want to look for *Geoport 1.2.2* for your AV. **SMcH**

Icon you not

ICONS

When trying to add icons to folders, I receive the message: 'The command could not be completed because it cannot be found.' Can you help?

Douglas Craig
Montrose, Angus

A Custom icons work fine for files as they are saved directly into the file itself in a resource fork – basically this keeps everything nice and neat. But folders and disks do not have resource forks, so custom icons are saved instead to an invisible file named ICON that resides in the same folder as the custom icon.

If the link between the folder or disk and the ICON file is lost – it's unfortunately one of those things that 'just happens' sometimes – the Finder may display a generic document icon in place of the custom icon. This corrupted icon cannot be edited using **Get Info**. The first thing you should do is to try rebuilding the Desktop by holding down **[command]** and **[option]** at startup. This may re-establish the connection.

If it doesn't work, try using *ResEdit* to make the ICON file visible, then replace it. But the easiest solution is to start over by creating a new folder and copying all the contents of the corrupted one into it. You should then be able to give your new folder a custom icon. **SMcH**

Colour television

MONITORS

I want to play Wolfenstein 3D *on my PowerBook 160, but the monitor does not allow colour. Will the computer read it as colour if I attach the Mac to my telly?*

Dario A Giustarini
Amsterdam, Holland

A Attaching your Mac to an ordinary television isn't quite as easy as it

Continued on next page

WHO IS JIM?

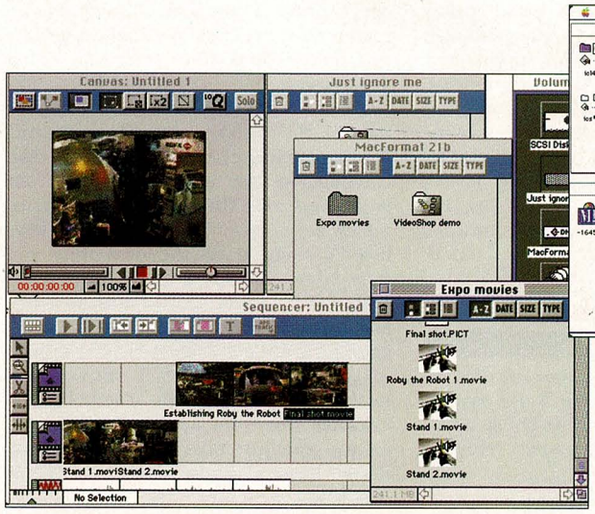
Jim Chandler has been working in the professional printing industry for eight years and uses all the major software applications on both Mac and PC compatibles.

WHO IS STUART?

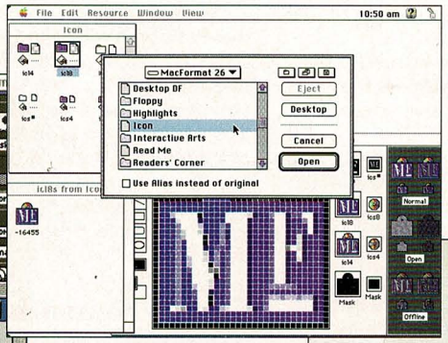
Stuart McHugh currently works in telephone support for one of the largest software companies, and has been in Macintosh publishing for nine years now.

WHO IS PHILIP?

Philip Jones is an American who works for Apple Technical Support. He works and lives in Texas. See, MACFORMAT does scour the world for answers to your queries!



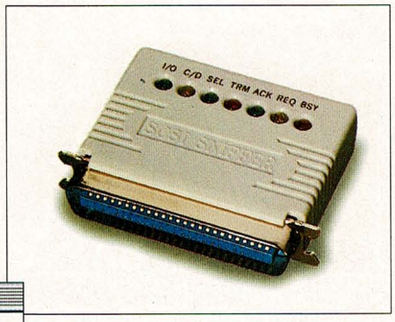
The *VideoShop* desktop video program demo with MACFORMAT 21 needs *Sound Manager 3* to run, but at least that's free. See 'Give us a speech'.

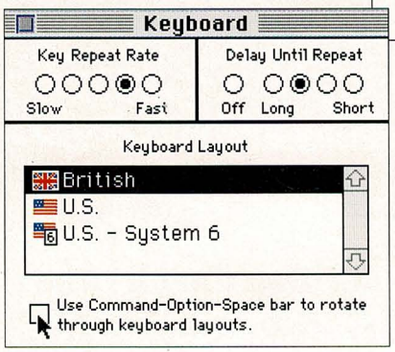


The MACFORMAT CD-ROM has a custom icon. Using *ResEdit* you can find and edit it. See 'Icon you not'.

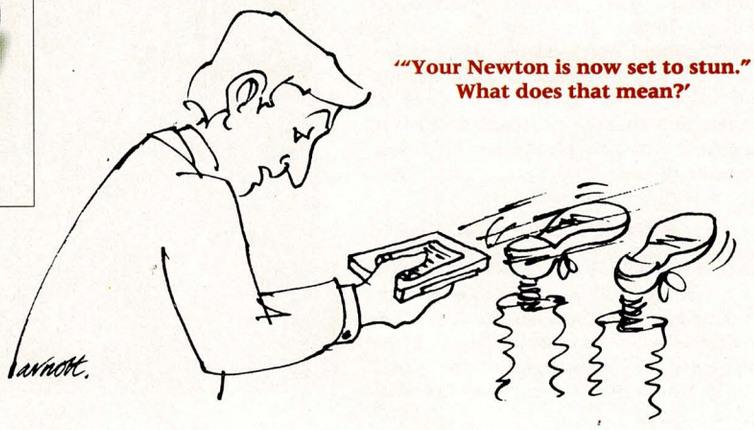
You can attach most Macs to a television using a Genlock, such as this one from Misco. See 'Colour television'.

SCSI Sniffer is a sort of super terminator for SCSI chains. Call Lan>U<Like on 01425 657905 for more details. See 'CD blues'.





If you use the free updater for 7.5, several bugs are fixed, including the ability to stop your Mac turning Norwegian. See 'Keyboard woes'.



'"Your Newton is now set to stun." What does that mean?'

MORE COLOURS

If you have an LCIII with 14-inch monitor, open the **Monitors** Control Panel, click **Options** and select 640 by 400. You'll get a smaller screen area, but displayed in thousands of colours!

SCUZZY

Well, that's how you say it. SCSI stands for Small Computer System Interface. This is a standard way of connecting hardware devices such as CD-ROM and SyQuest drives to your Mac.

JUMP UP

In an **Open** or **Save** dialogue box, hold down **[option]** and double-click on an alias to jump to the folder that contains that alias, rather than opening it.

PRAM...

...or parameter RAM is a small piece of your Mac's Random Access Memory. RAM can't store data after the power has been switched off. But PRAM is run by a battery, so it can be used for storing things that require very little Mb, like your Desktop clock and screen pattern. (Pronounced 'pee-ram', it has absolutely nothing to do with perambulators.)

sounds. The output from the Mac's monitor port isn't the same as the input expected by the television. It is possible to get adapters, though. Misco (01933 400400) advertises a VGA to TV converter for £292.58, which enables you to hook your PowerBook up to a TV. Alternatively, you could try Antec's £464.13 TVator Remote, from Neutral on 0181 599 9902. Even Apple is in on the act with its Presentation Kit, which costs around £265. Apple is on 0800 127753. Finally, owners of AV Macs can of course sit and smile smugly – their machines will drive tellies courtesy of their AV output.

The next problem is colour. Attaching a black and white or greyscale Mac to a TV will normally give you exactly the same display on the TV. However, you are in luck because the 160 is slightly unusual in that although it has a screen that can only show 16 shades of grey, the video circuitry can display 256 colours. This is because it was always designed to be able to be attached to an external video source.

The thing you have to be careful of, is that some Mac to TV adaptors may just mirror the grey image that you see on your PowerBook screen onto the TV screen. The Apple Presentation Kit will display 256 colours on the television, but if you opt for a different solution, make sure you ask their technical department the right question.

So the answer to your question is yes, you can attach your 160 to a TV and yes, you should get a colour picture. The problem is the price. For the money you would be just as well off buying a proper Mac monitor! **JC & PJ**

CD blues

HARDWARE

Q *With the Apple Plus 300 CD-ROM drive switched on I get a flashing question mark or a bomb alert and error 41. When the CD is disconnected, the Welcome to Macintosh message is shown and the system is fine. Is there a problem with the CD hardware, software, or the SCSI cable? I cannot use the CD-ROM drive at all now.*

M Ross
East Finchley, London

An error 41 means that the Finder could not be found, which has to be present for the computer to boot. We know it's on your hard disk because it does boot from that when the CD-ROM drive is unattached. This suggests, therefore, that the Mac is trying to start up from the CD. So make absolutely sure that there is no CD in the drive when you switch on.

Assuming you've tried that, it does look like there could be a hardware problem. Try resetting the PRAM by holding down **[command] [option] [P]** and **[R]** on startup. This resets all references to SCSI devices like the CD-ROM, so this might stop its confusion next time.

I've had problems with SCSI chains that have been solved by simply swapping cables, so see if you can borrow another one and try doing that. Or it may be that you need a terminator at the end of your SCSI chain. This will ensure the reliability of a SCSI chain and you should be able to buy them from any of the large advertisers in MACFORMAT for around £20. Finally, you could try reinstalling the CD-ROM driver software. **SMcH**

Newton mail

NEWTON

Q *I would like details (if there are any) on how I could connect an Apple Newton Message Pad to an e-mail service, as Apple hasn't yet established its own e-mail system in the UK.*

J M Winstone
Epping, Essex

A Actually, since late last year, Apple has brought out *NewtonMail*, which enables connection to Internet addresses or AppleLink account holders. All you need, apart from a Newton, is a fax/modem and a *NewtonMail* account. You can order the NewtonMail kit on 0800 896206. **SMcH**

Keyboard woes

SYSTEM

Q *I have a PowerMac 7100/660AV running System 7.5. From time to time the keyboard setup will change from British to whatever nationality my Mac deems suitable. This problem seems to occur most frequently when I'm using* FreeHand 4.0.

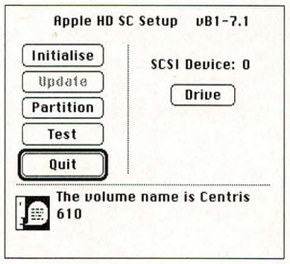
Lee M. Watts
Cambridgeshire

A This is, believe it or not, a deliberate feature built into System 7.5. Apple decided you might appreciate being able to cycle through all the various keyboard layouts available on your Mac – in alphabetical order (I can think of absolutely no reason why you could possibly want to do this, unless you work in a software testing department).

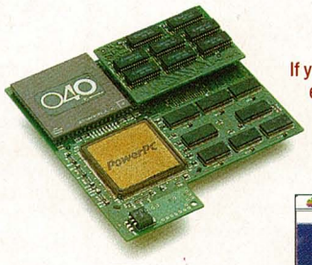
To add insult to injury, the key combination they chose was **[command] [option] [spacebar]**. That's right, the combination that gives you zoom out with *FreeHand*. The zoom still happens, which means you don't know your keyboard's changed till the next time you type. So not very clever.

However, Apple spotted this problem, and in the updater for System 7.5, they have included the chance for you to turn off this feature, which I suspect you might be quite keen to do. The updater is available free from Apple's Internet site, or you can just take four high density floppy disks along to your local Apple dealer and ask nicely.

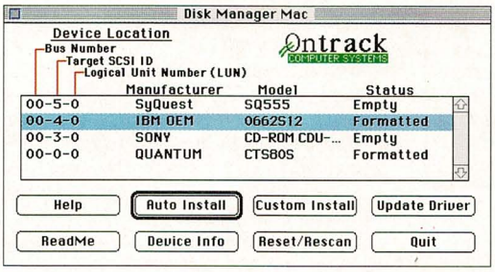
While you're waiting, you may decide to delete all those foreign keyboard layouts. This will also solve your problem, and save a little disk space. But where are



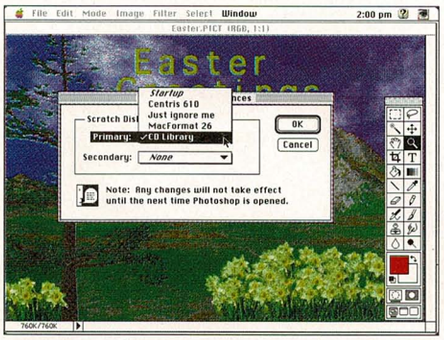
Apple's free *HD SC Setup* utility is very basic and only works with Apple drives...



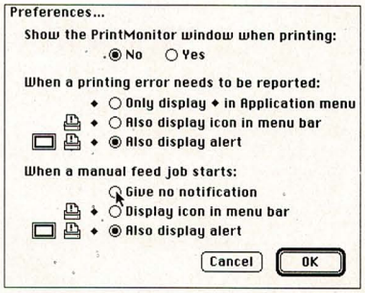
If you own an LC475, 630 or their Performa equivalents, you can upgrade to PowerMac performance with the DayStar PowerCard 601. See 'Wait for me'.



... while *Disk Manager Mac* will work with any type of hard drive. See 'Hard luck'.



Photoshop uses its own form of virtual memory, called a scratch disk, which can use any connected hard drive.



From the **Preferences** menu you can select to use an external drive as the scratch disk to make the most use of spare hard disk space. See 'Scratch the problem'.

they? In System 7.5 they're in the System suitcase along with all the beeps. **SMcH**

Hard luck

HARDWARE

Q *I've just bought a 350Mb Fujitsu hard drive for my Mac and I cannot get it to work!*

SCSI Probe *can see it at address 5, and can tell it's a Fujitsu drive, but it won't appear on the Desktop – not too surprising as it's not formatted (it may possibly be IBM formatted). Even worse, the* Apple HD SC Setup *hard drive formatting utility cannot see the drive at all – it claims I have only one drive, the internal one at SCSI ID 0. Could it just be that the* Apple HD SC Setup *software isn't compatible with the Fujitsu and that I need dedicated driver software? Or have I just missed something more basic?*

Mark Hodson
Anerley, London

In fact you've hit the nail on the head there. The *Apple HD SC Setup* utility (found on the Disk Tools floppy supplied with your System disks) is really intended for use with Apple drives, or at least, ones that were formatted using an Apple utility such as *HD Setup* and therefore use the Apple driver – as you say, it will see your internal disk. Fujitsu (who you can contact on 0181 573 4444) told us that they don't supply a Mac formatting utility, but that various third party Mac utilities will be able to format it, including *Disk Manager Mac* (available from Ontrack Computer Systems on 0181 974 5522 for £55.25 – reviewed in MACFORMAT 18) and *Spot-On* (available from MacPEAK on 01604 403761 or Applelink MacPEAK.EUR for £58.69). This seems like rather a lot of money to pay up just to format a hard drive, but as it shows up on *SCSI Probe*, there shouldn't be any fault with the disk.

If the disk is IBM formatted and you have *PC Exchange* (included with System 7.5, but it can be bought separately) the disk should appear on the Desktop (in theory, at least). **SMcH**

Scratch the problem

SCANNING

Q *I have an Epson GT-6500 scanner. Every time I try scanning an image I get an error saying, 'Could not complete your request because the primary scratch disk is full'. Perhaps I am also using the wrong resolution. Is there an easy way to solve my memory problem and work out the best scanning resolution?*

Cliodhna Donnellan
Drewsboro, Ireland

A I would bet you are scanning using *Photoshop*. Large, high resolution images can use up more memory than the majority of users have as RAM, so *Photoshop* uses up any spare disk space as a kind of virtual memory, called a scratch disk. If you don't have enough disk space to store the scanned image, *Photoshop* will give the error you describe. The only way around the problem is to free up enough hard disk space to hold the image before you scan, or to buy more RAM.

As far as resolution is concerned, it depends on what you want to do with your scanned image. If you only want to use the image as a screen display, then you only need scan it to around 72 dots per inch, which is the nominal resolution of the Mac screen.

If you are printing to a personal printer, find out from the manual its resolution and scan at that. 300 dpi for colour work will probably be fine, although you may want 600 dpi for black and white line art – if your printer can handle it, that is.

If you need to scan an image for bureau printing, you will have to know the screen frequency at which the picture will be printed. As a rule of thumb, your resolution will not need to be more than 2.5 times the screen frequency. For instance, if you're going to use a screen frequency of 150 lines per inch, you won't need to scan at a higher resolution than about 375 dpi.

Another thing to consider is any enlargement or reduction of the image. If you're only going to use the image at half the size of the original, you can halve the resolution you scan at. Similarly, if you're going to need to enlarge the image, you'll have to increase the resolution by the same proportion. **JC**

Wait for me

UPGRADES

Q *I am afraid that my LCIII will soon be forgotten. Can I upgrade my LCIII to a PowerMac?*

Harald Nagelgaard
Ulsteinvik, Normay

A Oh dear. Pity you don't have an LC475 because, as we said in the cover feature of last issue, Apple and DayStar produce a PDS upgrade card with a PowerPC chip on it. This simply plugs into the single expansion slot inside the LC475 and gives you a PowerPC.

Alas, currently there's no card to upgrade an LCIII to a PowerMac. Apple say that this is due to the technical limitations of the machine, and in particular, the 68030 chip inside. Although Apple produce no upgrade cards for Macs with the 68030 chip, DayStar do, but not alas the LCIII.

In fact, there is actually a way that LCII and LCIII owners could upgrade to PowerMac. You could buy Apple's upgrade logic board to turn your LC into an LC475, then buy the PowerPC card for an LC475. But this costs almost as much as a new 6100 and still wouldn't be as good.

Anyway, I note you've only got 4Mb of RAM in your LCIII. If there were a PowerPC upgrade card, you'd need at least another 8Mb memory, preferably more. And the upgrade card would plug in the only expansion slot you have, so

REST AT EASE

If you use *At Ease* on your Mac and want to get rid of it, you should use the System installation disks to uninstall it safely. Of course, most *At Ease* users own Performas which don't come with system disks...

EMERGENCY EJECT

When all else fails, you can eject a floppy disk from the internal drive by pressing **[command] [shift] 1**. Eject from a second external floppy disk drive by pressing **[command] [shift] 2**, from a third drive with **[command] [shift] 0**.

CROP SQUARES

To crop a graphic in *WordPerfect*, hold down the **[option]** key as you drag the handles of a graphic box.

POP THE BALLOON

Balloon Help does have at least one useful feature. Turn it on, then select **About This Macintosh** from the **Apple** menu. Move the cursor over the grey memory bar of any program for helpful information!

Continued on next page

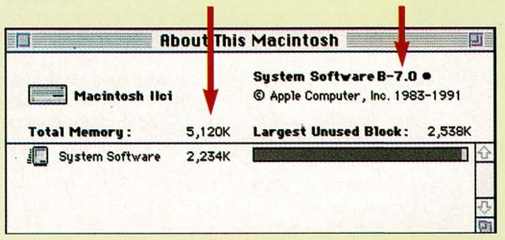
The do-it-yourself problem solving guide...

One of the main causes of problems on the Mac is Extensions or Control Panels clashing in the depths of your System Folder. Fortunately, it's easy to check if this is the case. Restart your Mac and hold down the [shift] key. You can let go of the key when you see the message 'Welcome to Macintosh. Extensions off'.

If everything now works, then the problem lies in your System Folder. The only way to work out which item is the culprit is by trial and error. Remove a few Extensions and or Control Panels, then restart your Mac. Keep going until the problem no longer occurs, and you have located the offending software.

If this doesn't work, another common solution is to rebuild your Desktop. Start up your Mac with [command] and [option] held down. You will get a message asking if you want to rebuild the Desktop. Click OK and see if this solves your problem.

If the problem persists then use the form below to ask our experts. We'll need to know a few facts about your Mac, so when you're in the Finder, select About This Macintosh from the Apple Menu. The picture (left) shows what we'll need to know.



'It says "Toner low. Join dots by hand"'.

no cards could be added for other purposes. Your best bet is to see how much you can get for your LCIII as a trade-in. **DS**

He's my brother

PRINTING

Q *I will soon be upgrading my Amiga to a PowerMac 8100. Would my Brother HL8V laser printer have any problems with the PowerMac? The printer has an RS-232C serial interface, so would it simply be a matter of finding the correct printer driver? If so, where could I get it from? I will be running* Photoshop *and* QuarkXPress.

Oliver Godard
Forest Gate, London

A Unfortunately, the Brother HL8V laser printer is not PostScript, and therefore you've got problems. When it's not driving a PostScript printer, the Mac uses a series of graphics commands called QuickDraw to tell a printer what to print. You will need to find a specific driver for the HL-8V to handle the conversion from QuickDraw to the printer's own language. Your best bet here would be to invest in a package called PowerPrint, which consists of a special lead and a barrow load of printer drivers. It's not cheap, at about £170, but it's got to be cheaper than replacing your printer. For more details on PowerPrint contact Academy Software on 0181 656 9560.

For the benefit of other readers (sorry, Oliver), if you plan to link your Mac to a laser printer and it is PostScript, then you should be able to attach it to the Mac's printer port using a serial cable (the Mac uses the RS-422 standard rather than the more common RS-232, but the two are close enough to be compatible) and run it using an ordinary LaserWriter printer driver, which is the Mac's standard driver for PostScript printers. You'll then be able to print from *QuarkXPress* using the General or Generic B&W printer types which you can choose from the **Page Setup** dialogue box. It may be worth hunting around for a PPD or PDF (Printer Description File) for your specific printer, which will give you more control over its trays and any special features it may have.

A final word of warning, though – *QuarkXPress* is designed to work specifically with PostScript printers. If your printer does not support PostScript, you may not get the results you hoped for from *QuarkXPress*. **JC**

If you send in a question for the MACFORMAT experts to solve, please fill in and include this form (or a copy of it). And please make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you.
Send your form and question to:
Mac Answers, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW. Or fax it to us on 01225 446019.

Name .....

Address .....

.....

.....

Your Mac
(For example, Performa 200, IIfx, PowerBook 145):

.....

System version
(see About this Macintosh screenshot above): .....

Amount of RAM
(see About this Macintosh screenshot above): .....

Are you using Virtual Memory? .....**YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Do you have 32-bit addressing turned on? .....**YES/NO**
(This is accessed from the Memory Control Panel under System 7)

Details of any relevant hardware which could help us to answer your question:

.....

.....

Now, use this space to describe your problem or question. Include as much relevant information as possible. Please continue on a separate sheet if necessary.

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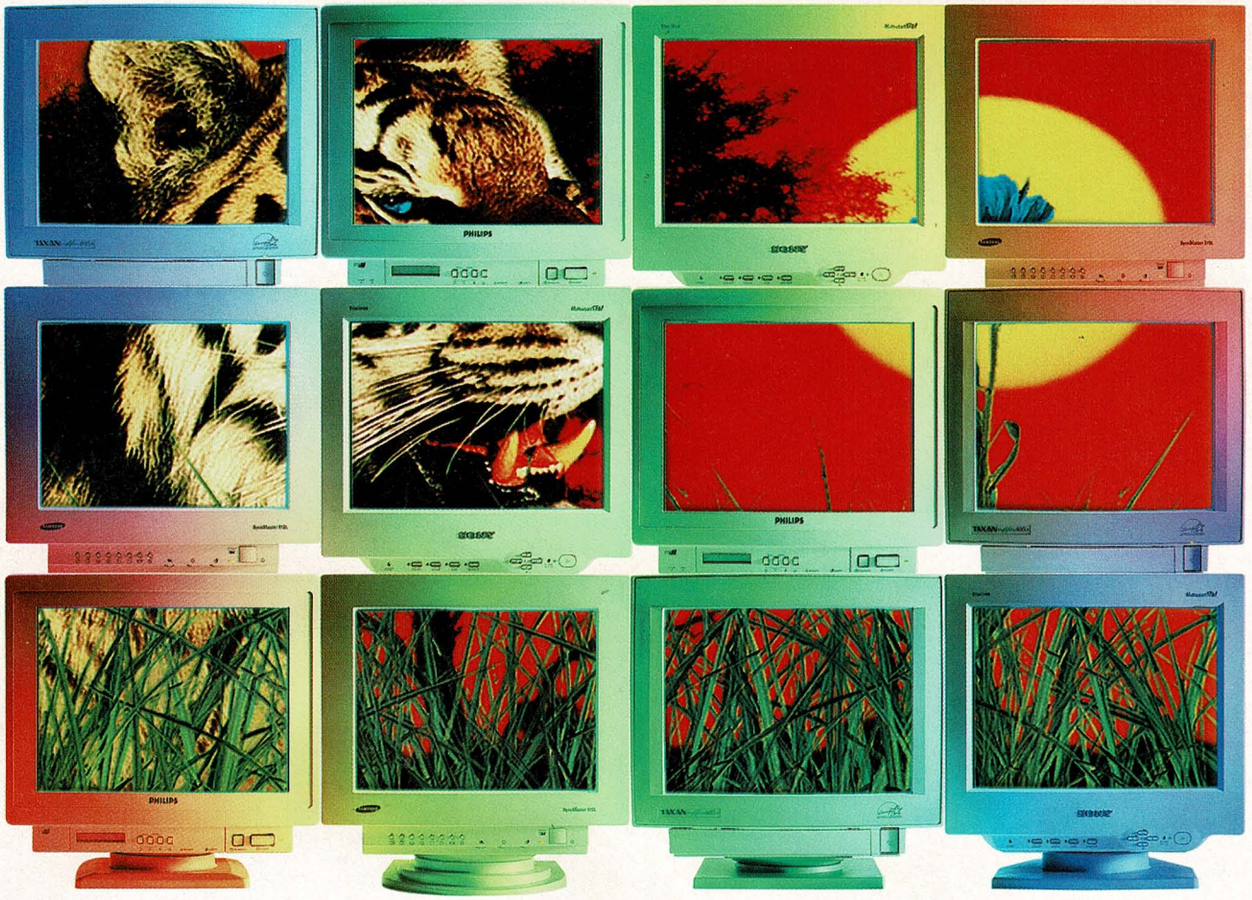
Sharp lines,
perfect curves,
brilliant graphics.
But you should
see it when it's
switched on.

SyncMaster	15GLe	15GLi	17GLi	17GLsi
CRT Size	15"	15"	17"	17"
Dot Pitch	.28	.28	.28	.26
Maximum Resolution	1024x768	1280x1024	1280x1024	1600x1200
MPR-II (Low Radiation)	•	•	•	•
TCO 92		•	•	•
Plug and Play	•	•	•	•
Power Management	•	•	•	•
Dynamic Focus		•	•	•
On-Screen Programming		•	•	•

After you've admired the new Samsung SyncMaster GLi series' finer features, switch it on and admire some more. It has DDC Plug and Play so you can use it the moment you plug it in, Dynamic Focus System for high resolution graphics and an EPA energy star PowerSave system for cheaper running costs. There are four monitors in the range, high and low end in both 15" and 17" screens, each one being compatible with both PC and Macintosh hardware. And because you'll spend hours staring at it there's a unique screen coating to prevent eye fatigue. The Samsung SyncMaster GLi series. It's as sophisticated on the inside as it is on the outside. For more information call Freephone 0800 454 352.

SAMSUNG ELECTRONICS

Screen Test



Just imagine how much more pleasant life would be with a bigger screen – more legible text, more vibrant images, more fun. Andy Storer sizes up some top 15- and 17-inch monitors.

PIXEL PERFECT!

Screen resolution is measured in pixels (short for 'picture elements') – think of them simply as dots that make up the picture. You'll also hear talk about 'bit depth': 8-bit colour means a maximum of 256 colours on screen, 16-bit is thousands of colours, and 24-bit is millions. This really is down to the power of your Mac – all colour monitors are capable of displaying millions of colours.

If you're replacing your existing display, adding a second, building a Mac system from scratch or buying an external monitor for your PowerBook or Duo, then you ought to consider the latest range of 15- and 17-inch monitors available (and on review here).

While the minimum requirements for buying a monitor are quite straightforward (a crisp, high contrast, rock solid image which isn't washed out, doesn't flicker and isn't distorted around the edges), there's no real substitute for seeing how a monitor performs when it's hooked up to a Mac. Since you're likely to be looking at it for hours on end, it's essential to buy the best you can afford.

Standard Mac displays, like the 14-inch model bundled with Performa systems, may be adequate for occasional home use, but you'll want more if you're planning to spend any amount of time with it, whether for professional use or for serious game-playing. Moreover, it's not exactly a pin sharp display either and although the 14-inch Macintosh Colour display at £293 is a better option, offering better resolution, there's still the question of size. In short, the standard 640 x 480 pixel resolution of these 14-inch models just doesn't enable you to view enough of your Desktop and application windows without continual scroll bar clicking.

So why should an extra inch or two make any difference? Well, the big difference with the 15- and 17-inch monitors on review here is that they're capable of multi-scan, meaning that their resolutions can be changed. So instead of a mere 640 x 480 display you can typically view a 830 x 624 display on 15-inch models and 1,024 x 768 pixels on a 17-inch system. Of course, there are models which go beyond these resolutions – offering 1,152 x 870 and 1,280 x 1,024 pixel displays on 20-inch and larger alternatives – but these usually start at around £2,500!

Pixels aside, the main difference between 15- and 17-inch monitors is clearly price. While models like Apple's Multiple Scan 15 offer higher resolution for as little as £360, you're looking at £880 for a 17-inch model. Is it worth it? Read on!

Refresh rate matters

When choosing a monitor there are a number of factors you should take into account besides size and price. The refresh rate of the monitor is one of the most important since this determines how often it draws the image on its screen. Refresh is measured in hertz (times per second) – abbreviated Hz. If the refresh rate is too slow you get flicker, and the larger the monitor, the more pronounced this becomes. Generally speaking, a display should have a refresh rate of at least 64Hz, with 72Hz or above being ideal in minimising eyestrain caused by flicker. Peripheral vision is particularly sensitive to flicker so if you're in doubt about a screen display, turn away from it and see how it looks out of the corner of your eye.

BUYERS' CHECKLIST

In order of importance, ask these questions when buying any size display:

- How sharp is the screen image? The main element determining this is the monitor's display pitch. Depending on the technology employed here, pitch may be either dot, stripe or aperture grille pitch. This pitch is the size in millimetres of each individual pixel in the grid forming the monitor's display. So look for the smallest figure you can find – 0.25 or 0.26 mm is very good. Another factor affecting sharpness is the ability of the display tube to focus the three colour beams comprising each pixel to hit the same spot on the screen, known as convergence. Some monitors enable you to adjust this yourself and are well worth considering as a result.
- Is the screen big enough for your particular needs?

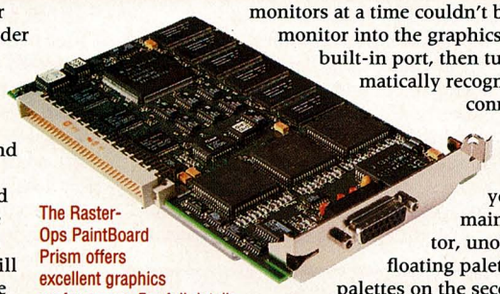
Work out how much screen real estate you're likely to require for your needs. A 1,024 x 768 pixel display will enable you to see the contents of a 14 x 10-inch window, while the 832 x 624 pixel displays of 15-inch monitors will show a 11 x 8-inch window.

- Does the monitor adhere to EC radiation standards?
- Do you have a big enough desk to sit far enough away from the monitor? You'll need at least one arm's length
- Are the controls easy to reach?
- Can you adjust the colour balance?
- How easy to operate is the tilt and swivel stand supplied?

DO YOU NEED A GRAPHICS CARD?

If you are serious about a better display, you may want to consider a graphics card. They plug into the PDS or NuBus expansion slot found in all colour Macs and enable you to enhance the performance of your monitor and add a second one if you want.

The wide variety of cards and features is reflected in the wide range of prices – anything from £400 to £3,000. Usually they will offer enhanced features over the Mac's built-in monitor port, like displaying more colours or supporting larger monitors.



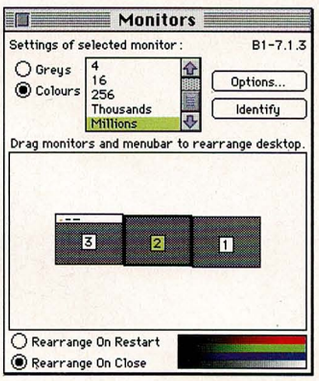
The Raster-Ops PaintBoard Prism offers excellent graphics performance. For full details, contact Frontline on 01256 841841.

Some are called accelerated graphics cards, because they also speed up screen redraw. If you have ever tried to scroll a large picture around the screen, you know how jerky and slow the process can be. An accelerated graphics card will speed up the scrolling and make it smoother.

If you have bought a graphics card, connecting two monitors at a time couldn't be easier: simply plug one monitor into the graphics card and one into the built-in port, then turn your Mac on. It automatically recognises that two monitors are connected, and in effect you now have twice as much Desktop space. When using a graphics program, you could now put your main image on the main monitor, unobscured by tool bars or floating palettes, and have all the palettes on the second. As you move the mouse to the edge of one screen, the cursor appears on the next!

Graphics cards are available from many of the major suppliers. Flip through the ads in this issue of MACFORMAT to see what's available or try Midwich Thame (01379 649200), Principal (01706 832000) or Computers Unlimited (0181 200 8282).

If you add two graphics cards (if your Mac can fit them, it's powerful enough to drive them), you can use three monitors! Windows going off the edge of one screen appear on the next.



The **Monitors** Control Panel organises your monitors – any connected appear on it.

Apple Multiple Scan 15 Display and Multiple Scan 17 Display

No problems whatsoever in actually hooking up the Apple displays to a Mac – well, you wouldn't expect any, would you? So you'll probably be surprised to hear that you require special System software, Apple's *Display Enabler*, to access anything other than a standard 640 x 480 pixel display. Once installed, both the Multiple Scan models provide a great display which can be changed on-the-fly, without you having to restart your machine.

MACFORMAT Classic

The 17-inch model is unique among the monitors in this test, as you can plug your keyboard and mouse directly into its tilt and swivel base, as well as a microphone and headphones. Both models offer a handy function enabled by the System Extension which can power down the monitors after a preset period in order to conserve energy. But there the real differences between Apple's own displays and those of their competitors end; as you'll find from reading the other reviews here, there's not a great deal between any of the test units, aside from a few minor exceptions.

The controls of the Multiscan 17 are accessed via a pull-down panel which reveals a bank of buttons for adjusting image position, size, colour and rotation. Unfortunately, the brightness and contrast controls are also behind this panel, which is an oversight on Apple's part as these should be facia mounted for easy access. On the 15-inch model there's no panel cover, so it's a all much easier. Colour control is restricted to three settings though – 9,300K (which appears bluish), 6,500K (which is page white) and 5,000K (which appears reddish) – there's no user-definable settings.

But in terms of display performance both the Multiple Scan models deliver very good results. I ran the 17 as a 19-inch virtual display (1,024 x 768 pixels) on a Quadra 840AV and the screen output was still crisp enough to use for word processing applications. And at its two lower resolutions – 832 x 624 (16-inch) and 640 x 480 (14-inch) results were even more impressive.

APPLE MULTIPLE SCAN

Apple Multiple Scan 15
Price: £360.
MACFORMAT RATING 90%

Apple Multiple Scan 17
Price: £880.
MACFORMAT RATING 88%

WHERE TO BUY?

For distributors' contact details, and a summary of each monitor's features, turn to page 85.

Continued on next page

Hitachi 15MVX Value and 17MVX Value

Despite their rather old-fashioned appearance, Hitachi's MVX Value monitors are bang up to date as far as power management and colour adjustment are concerned, and other functions are all easily accessible and controllable. Both monitors turn off automatically if no video signal is detected and both offer dual colour mode presets.

As with most of the other monitors on test here, the Hitachi models store user-defined settings each time they're powered down. The two most commonly used controls, brightness and contrast, are easily accessible via push buttons, while the handling position and size are hidden behind the panel and a bit fiddly to reach on the 17-inch model. There's the full set there though and a further range available by pushing the function button to access the geometry and colour controls.

Like most non-Apple units, these require an adaptor, but once configured this too can be quickly forgotten about. Picture quality is very good with a high contrast, sharp image displayed in all resolutions we tried. Because the tube is darkened glass with a non-glare finish, you don't get annoying reflections either. One word of warning however: I found that prolonged use of the 17-inch monitor required a screen guard since I experienced the headaches I normally associate with electromagnetic radiation. Still, with a screen filter fitted the monitor performed adequately and is a decent mid-range performer with no serious faults – or indeed highlights.

Both monitors are equipped with a handy power-saving feature that automatically powers down the monitor after a user-defined period of inactivity. Also, included on each display is a degaussing control which eliminates the build-up of stray magnetic fields which can affect the purity of screen colours, focus and convergence.

Overall the 15-inch model at almost half the price of its bigger brother is probably better value for money and produces excellent onscreen results whatever resolution it's driven at. Both the Hitachi 15- and 17- inch models offer resolutions up to a 19-inch equivalent, so if your Mac has the necessary VRAM they're good value performers.

HITACHI VALUE

Hitachi MVX15 Value
Price: £364.
MACFORMAT RATING **89%**

Hitachi MVX17 Value
Price: £722.
MACFORMAT RATING **88%**

NEC Multisync XE15 and XE17

Besides their distinctive appearance, NEC's 15- and 17-inch contenders are probably the most sophisticated monitors in this group test, boasting a whole range of features not found in their competitors. Part of the reason for this, ironically, is that both the XE15 and XE17 have been specifically developed for use with Microsoft's new Windows 95 operating system, which has finally got round to introducing the plug-in-and-play capabilities Macs have had since Year Zero. So, the first thing you notice about the NEC models is that there are hardly any controls to be see on the facia. This is because the monitors have their own built-in pop-up display which acts as a menuing system with which you can adjust all the usual display features such as positioning and sizing. But the XE15 and XE17 also include some genuinely useful innovations you won't find in the other monitors on test here.

MACFORMAT Classic

First of all you can precisely adjust their RGB output – with far greater control than any other form of colour correction from their competitors. In addition you can set the vertical linearity of the display so that an object which is meant to be an inch square appears to be exactly an inch square on screen. Whether features such as Global Sync are of any use though and not just mere embellishments is open to debate – I mean, how often would you be worried that local variations in the Earth's magnetic field may be affecting the outer edges of your display? Meanwhile, back on earth, there's readily available manual control over brightness and contrast levels.

As you might expect given the sophistication on offer here, NEC hasn't overlooked the monitor's performance. The display is rock steady, offering sharp, high contrast images whatever the resolution. It's able to automatically detect 640 x 480, 832 x 624 and 1,024 x 768 pixel screen signals fed to it and treats them all to the same high quality results. In short, NEC models are the current state of the art when it comes to high performance monitors.

NEC MULTISYNC

NEC Multisync XE15
Price: £559.
MACFORMAT RATING **88%**

NEC Multisync XE17
Price: £989.
MACFORMAT RATING **91%**

Philips Brilliance 15A and Philips 17T

Digitally controlled auto-scanning monitors with low radiation emission and Sony Trinitron CRTs, both the Philips units offers display resolutions of up to 1,280 x 1,024 pixels. They're the only monitors on test here which accept an RGB video signal and come complete with a massive lead with five separate BNC connectors to make the actual connection. If you have an accelerated graphics card with RGB output then this might be worth considering, but for the rest of us, composite video is all we're going to be able to utilise. Once more, it's down to the handy Unimac adaptor (see page 85) to make this possible.

Setting up the monitors is somewhat less easy than the others, and the blame is due entirely to the controls on the front of the unit. Although the 17T has an LCD display showing the resolution and scanning rate the monitor is currently utilising, the remainder of the controls aren't particularly easy to use. The brightness and contrast controls are easy enough to get at – and let's face it, these are the two you're most likely to want to adjust on a regular basis – but the rest require going through a menu system using the LCD display as a screen. Pressing a diamond shaped button at the front of the unit calls up various positioning and sizing functions on the small LCD which can then be tweaked using two other buttons. What's more there's a second level of menus handling the geometry of the display, where you can adjust the pin and parallel presets. It's all a little like programming a digital wristwatch. But once done the presets are stored in the unit's memory and that's all there is to it.

In operation the 17T was surprisingly disappointing despite its Sony Trinitron tube, but the 15-inch monitor held up well, giving good results. Perhaps this is because the 17T is optimised for RGB connection but with normal Macintosh composite sync connection the image wasn't as sharp and crisp as I would have expected. Also, towards the bottom of the display the image was patchy and looked distinctly darker than at the top. To top it all, when running in emulated 16-inch mode display results were the poorest of the bunch with a notable lack of definition.

PHILIPS BRILLIANCE

Philips Brilliance 15A
Price: £446.
MACFORMAT RATING 83%

Philips Brilliance 17T
Price: £821.
MACFORMAT RATING 81%

Samsung SyncMaster 15GL and SyncMaster 17GL

The first thing one should bear in mind about Samsung's SyncMaster duo is their prices – they're nothing short of incredible in comparison to the rest of the monitors on test here. The 17-inch model in particular is exceedingly good value for money – coming in nearly £300 cheaper than most of the others. So the obvious question to ask is why should this be? Samsung may well be one of the largest manufacturers of electrical goods on the planet but even volume production can't account for these bargain basement prices. So are the prices meant to redress a credibility problem? Or do these monitors simply fail to deliver? The answer to the latter question is a resounding no!

MACFORMAT Classic

What's clear from using both models is that there's no real lack of functionality worth mentioning, except for an absence of colour control. But unless you produce colour output this won't worry you. Image resizing, image rotation and de-gaussing are all on offer here.

Otherwise, both the 15GL and 17GL are pretty easy to set up once you've fitted the supplied Mac adaptor – which costs an additional £15. The 17-inch model displays its settings on screen like the NEC models, and you're able to adjust the various presets to your exact needs simply by pressing a button mounted handily on the facia, while the 15-inch relies on manual control – but both monitors offer up to 11 user-definable presets. The 17GL goes all the way up to 1,280 x 1,024 pixel resolution and also boasts an anti-static CRT coating, while the 15GL offers a maximum resolution of 1,024 x 768.

In operation, both these cream-cased monitors offer surprisingly good quality displays, given their price-points – so much so that both earn MACFORMAT Classic ratings. You have to wonder if it's worth paying out so much extra on other makes for additional functions which are largely niche-based.

WIN A SAMSUNG 17GL MONITOR – SEE PAGE 138

SAMSUNG SYNCMASTER

Samsung 15GL SyncMaster
Price: £297 (plus £15 for Mac adaptor).
MACFORMAT RATING 90%

Samsung 17GL SyncMaster
Price: £555 (plus £15 for Mac adaptor).
MACFORMAT RATING 90%

Continued on next page

Sony Multiscan SF1 and 17SF

Both these monitors are real beauties fitted out in a light cream casing with a relatively small footprint. They both have easily accessible, easy-to-use digital controls offering precise positioning, sizing and colour adjustment. A power saving function which kicks in if a video signal isn't detected is also included, so if you have a Mac without the facility for keyboard power on and power down, this feature will save you having to worry about whether you've turned off the unit or not.

With a scanning range of between 31.5 and 64KHz, they will sync to most video modes. In addition, their two factory preset colour modes and one user adjustable colour mode enable you to adjust on-screen colour balance to suit your hard copy printouts. With neat features such as digital controls, raster rotation power saving and low emissions, both Sony models are great performers.

MACFORMAT Classic

Unfortunately though they don't come supplied with a Mac cable as standard, so you initially have to set up the supplied Unimac adaptor to run with your particular machine. This however is something which only needs to be done once and is simply to enable you to set the resolution you require. If your hardware allows it, the 17SF will provide a resolution right up to 1,152 x 870 pixels at 75Hz, though only the Quadra range can supply this screen real estate. The SF1 will also deliver the same resolution but 16-inch emulation is preferable and produces excellent results. In operation on most Macs though, the display of the 17SF is actually a 16-inch emulation of an 832 x 624 display. This can be resized to fill the entire diagonal width of the 17SF though with the easily operated digital controls on the front of the unit. Like its smaller brother, each time you turn on the 17SF after any adjustment it will default to your new settings. Up to ten user-defined modes can be stored in the unit's internal memory, so if you have several computers you wish to use with the Sony monitors they will remember the settings each time a different machine is connected.

SONY MULTISCAN

Sony Multiscan SF1
Price: £464.
MACFORMAT RATING 92%

Sony Multiscan 17SF
Price: £880.
MACFORMAT RATING 89%

Taxan 580plus LR and 880LR

Both Taxan's monitors are part of their Ergovision series where the intent is to supply energy efficient, low radiation, multi-scanning high resolution colour monitors with flatter squarer tubes. Sitting in a rather dull grey casing, the screens are anti-static, anti-glare and anti-reflective and together with the built-in de-gaussing control on the front of the units offer low electrostatic and electromagnetic emissions. In other words, we're talking about monitors designed to be as environmentally friendly as possible.

Offering resolutions as high as 1,280 x 1,024 the Taxans have a full set of controls mounted behind a drop-down panel on the front of the units. I'm not a great fan of this kind of design – I prefer readily available controls without the fiddly hassle of opening up a panel. But having said that, I must admit the number of control functions is impressive. Besides the standard controls for adjusting the position and size of the image, you can also adjust what is known as barrelling and pincushion distortion (determining the curvature of the outer edges of the screen display so that the image is square). Along with brightness and control buttons, there's also a facility to alter the angle of rotation of the image being displayed.

Usefully, there's also a couple of controls to adjust colour temperature and balance. Both models come with preset modes for the two most commonly used colour temperatures (9,300K and 6,500K), but a user-definable override can be set to configure your own colour display preference to match the output of any colour printer you may own. Unfortunately, the sensitivity of the various controls relating to position and size isn't particularly impressive. But given the fact that the units have memory presets for adjustments you make, you shouldn't need to bother re-configuring the monitors once you've initially set them up.

In terms of a crisp, sharp display both the 580 and 880 performed well and all tests revealed a stable image with rich colour display. Again, the Taxan monitors are designed for PCs, so you'll need an adaptor to use them with your Mac and Taxan supplied their own easy-to-use adaptor for this purpose.

TAXAN

Taxan 580plus
Price: £445.
MACFORMAT RATING 86%

Taxan 880LR
Price: £821.
MACFORMAT RATING 85%

MAKE THE CONNECTION WITH A MAC ADAPTOR

Since most monitors available on the market are designed for PC compatibles a problem arises as to how to connect these up to your Mac. The Unimac adaptor is the best solution. All you have to do is select the required monitor size from the supplied chart and then change the adaptor's Dip switches.

The Unimac adaptor also supports a wide range of monitor sizes – 12-, 13-, 15-, 16-, 19-, 21-inch, Portrait and two page mono. There's also support for 13-, 14-, 17- and 21-inch monitors connected to Macs capable of on-the-fly switching such as the PowerMac and Quadra 630.

The added bonus with the Unimac solution is that you can use the adaptor to run a 17-inch monitor with 19-inch settings, or a 14- or 15-inch monitor with 16-inch settings. Although the resulting loss of crispness makes this 'virtual' screen real estate unsuitable for text-based work, it's nevertheless fine for any imaging work as you have a significantly larger area in which to position various floating tool and menu palettes. The size of the virtual display you're able to run all depends on the amount of VRAM you have installed in your machine – if you have less than 1Mb you can only drive a 16-inch virtual display (that's 832 x 624 pixels) but with 1Mb-plus you can achieve the 1,024 x 768 of a 19-inch virtual display. And what's more you can even run this on a standard 14- or 15-inch monitor – though you might have to sit rather close to the screen!

Whatever monitor you buy, check whether you'll need an adaptor to connect it to your Mac.

An altogether simpler adaptor is the one supplied by Taxan. It offers four different resolution modes – 640 x 480, 832 x 624, 1,024 x 768 and 1,152 x 870 – easily definable through just five jumper switches as opposed to Unimac's 16 dip swiches. This converter works with any Mac with built-in video and also allows connection between Taxan monitors and Radius accelerated video cards in Macs with Nu Bus slots.

The best on test

Best buys – 15-inch

The Sony Multiscan 15SF is perhaps the best of the monitors on show here in terms of value for money since it not only looks good and performs well, but produces great results even when displaying a 16-inch virtual screen. It's very compact in design and has readily available controls on the front of its light cream casing. Taken together, features such as digital controls, raster rotation, power saving and low emissions, make the 15SF a top-notch monitor well worth the money.

17-inch

The NEC Multisync XE17 produced the best displays of all the monitors on test here and along with its genuinely innovative range of features comes in as the top performer. It looks pretty neat too. But expect to pay a little more for this kind of quality, so shop around and perhaps try and find a good deal through mail order.

Value for money performer

There are two contenders here, the Apple Multiple Scan 15 and the Samsung 15GL, both superb value at £360 and £297 respectively. Well worth the extra cash above the 14-inch standard Apple display. While both lack some of the features of the Sony Multiscan SF1, it's up to you whether these count for much considering the extra cost involved. In short, both brilliant monitors at brilliant prices. For a value-for-money 17-inch, the Samsung 17GL must be worth a look. **MF**

MONITORS AT A GLANCE

All the monitors on review here offer contrast, centering and brightness controls, plus image re-sizing as standard. For other considerations to bear in mind when purchasing a monitor, please turn to the Buyers' checklist on page 81.

One last thing: make sure you let your supplier know you will be using a Mac and require the relevant adaptor.

Monitor	Picture tube	Image rotation	Colour control	User-defined modes	Price	Supplier
Apple Multiple Scan 15	0.26mm stripe pitch	yes	yes	no	£360	Apple 0181 569 1199
Apple Multiple Scan 17	0.26mm stripe pitch	yes	yes	no	£880	as above
Hitachi 15MVX	0.26mm dot pitch	no	yes	yes	£364	Hitachi 0181 993 8111
Hitachi 15MVX	0.26mm dot pith	no	yes	yes	£722	as above
NEC Multisync XE15	0.28mm dot pitch	yes	yes	yes	£559	NEC 0181 993 8111
NEC Multisync XE17	0.28mm dot pitch	yes	yes	yes	£989	as above
Philips 15A Brilliance	0.26mm dot pitch	no	no	no	£446	Philips 0181 689 4444
Philips 17T Brilliance	0.26mm dot pitch	no	no	no	£821	as above
Samsung 15GL SyncMaster	28mm dot pitch	no	no	yes	£297	Gasteiner Technologies 0181 345 6000
Samsung 17GL SyncMaster	28mm dot pitch	no	no	yes	£555	as above
Sony Multiscan SF1	0.25mm aperture grille pitch	yes	yes	yes	£464	Sony 01932 816000
Sony Multiscan 17SF	0.25mm aperture grille pitc	yes	yes	yes	£880	as above
Taxan 580LR	0.28mm dot pitch	yes	yes	yes	£445	Taxan 01344 484646
Taxan 880LR	0.28mm dot pitch	yes	yes	yes	£821	as above

LARGE OR SMALL

Given the £400 difference a couple of inches makes, you may be wondering what the advantage is of paying out the extra cash – after all, you could nearly buy two 15-inch models for the price of a 17-inch. The simple answer is, it all depends on the kind of work you do. Desktop publishers and imagers will benefit from a 17-inch display, while a smaller screen might be fine for text-based work. In terms of value the 15-inch models are a clear winner, since you can always run them in 16-inch emulation mode if you require a large screen real estate area from time to time.

JARGON BUSTERS

Dot pitch: a measure of the sharpness of a screen image. As a broad rule, the smaller the dot pitch figure, the sharper the picture.

NuBus: the standard type of plug-in expansion slot on newer Macs. Older models use PDS or Processor Direct Slot plug-ins. There are graphics boards available to fit both kinds of slot.

VRAM: Video RAM. A part of memory allocated specially to running the screen display. The more VRAM your Mac has, the bigger the monitor and the greater the resolution it can support.

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POWER MACINTOSH HARDWARE

Power Mac 6100/66 8/350	1145	Power Mac 6100/66 8/350 CD	1274
Power Mac 7100/80 8/350	1733	Power Mac 7100/80 8/700 CD	2030
Power Mac 7100/80 8/700 AV CD	2140	Power Mac 8100/100 8/700	2445
Power Mac 8100/100 16/700 CD	2784	Power Mac 8100/100 16/1000 AV CD	3045
Power Mac 8100/110 16/2000 CD	3885		
AWS 6150 8/500 CD	2205	AWS 6150 8/500 CD & FileMaker Pro Server	2710
AWS 8150 16/2000 CD DAT	5055	AWS 8150 16/2000 CD DAT & FM Pro Server	5440
AWS 9150 24/4000 CD DAT	7530	AWS 9150 24/4000 CD DAT & 4D Server	7945
SoftWindows & 8Mb (for 8Mb PowerMacs)	330	SoftWindows (for 16Mb PowerMacs)	110
Power Mac 6100 DOS Compatibility Card	385	Power Mac 6100 NuBus Adaptor	45
AV Display card	350	256k Cache Card	105
Power Mac Upgrade Card for Quadra/LC	545		

POWER MACINTOSH BUNDLES

Power Mac 6100/60 8/250 & DOS Compatibility Card & 8Mb Memory Upgrade	1470
Power Mac 6100/60 8/250 CD & DOS Compatibility Card & 8Mb Memory Upgrade	1575
Power Mac 6100/66 8/350, 14" Monitor, Agfa StudioScan I & Aldus PageMaker	2126
Power Mac 8100/80 8/500, 17" Monitor, Agfa StudioScan II & Aldus PageMaker	3307
Power Mac 8100/80 8/500 & 17" Trinitron Monitor	2405
Power Mac 8100/110 16/2000 CD & 20" Trinitron Monitor	5105

APPLE ON-SITE MAINTENANCE

		1 yr	2 yr	3 yr
Group 1	StyleWriters, imageWriters	15	55	92
Group 2	LC & Performa 400s, Scanners, CD-ROM Drives, Monitors up to 16"	15	84	126
Group 3	LC, Performa & Quadra 600s, Powerbooks, Duos, Colour StyleWriters Monitors over 16", Quicktake 100, LaserWriters	15	99	165
Group 4	Quadra 8/900s, Workgroup Servers, all Power Mac	15	135	220

APPLE MACINTOSH HARDWARE & BUNDLES

Performa 475 4/250 & keyboard	619	Performa 475 4/250 Plus & keyboard	629
Performa 630 4/250 & keyboard	761	Performa 630 8/250 CD & keyboard	881
Performa 630 8/250 CD Plus & keyboard	1024	Quadra 630 4/250 & keyboard	813

Mac Bundle	RAM	HD	Bundle includes	
Performa 475 4/250	4	250	Performa 14" display & keyboard	687
Performa 475 4/250 Plus	4	250	Performa 14" display & keyboard	731
Performa 630 8/350 CD	8	350	V-in-TV & keyboard	1049
Performa 630 8/350 CD Plus	8	350	V-in-TV & keyboard	1181
Performa 630 4/250	4	250	Performa 14" display & keyboard	852
Performa 630 4/250	4	250	Multiscan 15" display & keyboard	933
Performa 630 8/250 CD	8	250	Multiscan 15" display & keyboard	974
Performa 630 8/250 CD Plus	8	250	Multiscan 15" display & keyboard	1017
Performa 630 8/350 CD	8	350	V-in-TV, Multiscan 15" display & keyboard	1177
Performa 630 8/350 CD Plus	8	350	V-in-TV, Multiscan 15" display & keyboard	1220
Performa 630 12/500 CD DOS	12	500	DOS Compatibility card, DOS 6.22, Windows 3.11 & kb	1249
Quadra 630 4/250	4	250	Multiscan 15" display & keyboard	987

Performa 630 Video In card	85	Performa 630 Video In & TV Tuner card	215
Performa 630 Presentation kit (Video Out)	199	Power Mac Upgrade Card	545

POWER PC PERFORMA HARDWARE & BUNDLES

Performa 6200 8/500 CD & keyboard	979	Performa 6200 8/500 CD & keyboard	1187
Performa 5200 8/500 CD Plus & keyboard	1248	Performa 5200 12/500 CD Plus V-in-TV & kb	1450

Mac Bundle	RAM	HD	Bundle includes	
Performa 6200 8/500 CD	8	500	Performa 14" display & keyboard	1117
Performa 6200 8/500 CD Plus	8	500	Multiscan 15" display & keyboard	1312
Performa 6200 8/500 CD DS Plus	8	500	14" Trinitron display, Design Speakers & keyboard	1209
Performa 6200 12/500 CD Plus	12	500	V-in-TV, Multiscan 15" display & keyboard	1525
Performa 6200 12/500 CD DS Plus	12	500	V-in-TV, 14" Trinitron display, Design Speakers & kb	1404

APPLE MACINTOSH POWERBOOKS

	RAM	HD	CPU	Screen	
Powerbook 150	4	250	33MHz 030	9.5" 4 GS PM	699
Powerbook 150 & GV Bronze Modem	4	250	33MHz 030	9.5" 4 GS PM	771
Powerbook 150 & GV Gold Modem	4	250	33MHz 030	9.5" 4 GS PM	876
Powerbook 150 & GV Mercury Modem	4	250	33MHz 030	9.5" 4 GS PM	944
Powerbook 520	4	240	50/25Mhz LC040	9.5" 256 PM	1135
Powerbook 520C	4	240	50/25Mhz LC040	9.5" 256 PM	1670
Powerbook 520C EM	12	320	50/25Mhz LC040	9.5" 256 PM	2168
Powerbook 540C	4	320	66/33Mhz LC040	9.5" 256 or 32k AM	2656
Powerbook 540C EM	12	500	66/33Mhz LC040	9.5" 265 or 32k AM	3245
Powerbook Duo 280 EM	12	200	66/33Mhz LC040	9" 16GS AM	2010
Powerbook Duo 280C	4	500	66/33Mhz LC040	8.4" 256 or 32k AM	2108
Powerbook Duo 280C EM	12	500	66/33Mhz LC040	8.4" 256 or 32k AM	2447

Key: EM = Express Modem, GS = Greyscale, GV = Global Village, PM = Passive Matrix, AM = Active Matrix

Powerbook DuoDock II	660	Powerbook Duo MiniDock	280
Powerbook PCMCIA Expansion Module	110	Powerbook Duo Rechargeable Type III Battery	55
Powerbook Type II/Type III Battery	85	Powerbook Duo Floppy Adaptor	82
Powerbook External 1.44Mb drive	95	Powerbook 1xx AC Adaptor	38
Powerbook 500 AC Adaptor	95	Powerbook Duo AC Adaptor	45
Powerbook Standard Carry Case	20	Powerbook Business/Designer Carry Case	40

MEMORY

	1Mb	2Mb	4Mb	8Mb	16Mb	32Mb
Classic, Mac II, Q700 30 pin	55		123	255	449	
Quadra, PMac, LCIII, 475, 630		59	99	199	355	699
Quadra 660AV, 800, 840AV			150	280	463	718
Powerbook 520, 520c, 540, 540c			150	288	552	
			4Mb	6Mb	8Mb	10Mb
Powerbook 140, 145B, 170			108	161		
Powerbook 160, 165, 180			117	174	231	307
Powerbook 165C, 180C			130	180	230	240
Powerbook 150			152		285	
	1Mb	2Mb	4Mb	6Mb	8Mb	16Mb
Personal Laserwriter 320		82		229		
Laserwriter Select 300/310	65		165			
Laserwriter 16/600			145		260	520
Laserwriter Pro 630			150			
Laserwriter Pro 810			260			

Video RAM	256k	15	512k	25

PSION SERIES 3

Series 3a 256k	175	Series 3a 512k	199
Series 3a 1Mb	249	Series 3a 2Mb	299
Series 3S 256k	129	PC Comms Link	49
Mac Comms Link	55	Mains Adaptor	12
Parallel Cable	23	Leather Wallet	19
Fax Modem	159	128k Flash SSD	27
128k RAM SSD	37	256k Flash SSD	40
512k RAM SSD	89	512k Flash SSD	65
1Mb RAM SSD	189	1Mb Flash SSD	89
2Mb Flash SSD	139	4Mb Flash SSD	255
3Flight Manager	58	Psion Money	40
3Base	24	3Flight Manager	58
Agenda 3 Win	59	Agenda Link 3a	29
Data Deluxe	49	Datavision	49
Finance Pack 3a	50	Games 3a only	34
Spellcheck/Thesaurus	29	Spreadsheet	24
WinLink	23	Widget Tools	42

APPLE HANDHELDS

Message Pad 110	325	Message Pad 120	395
Connectivity Kit	55	Fax Modem card	80
Print Pack	45	Mains Adaptor	18
1Mb Storage card	60	2Mb Storage card	110
4Mb Storage card	200	NICAD Battery Pack	16
Leather Carry case	40	Recharger & Mains	54
SOFTWARE			
GoFigure	25	PocketCall	65
ExpensePlus	38	Notion List Manager	30
Jig Saw	16	FilePad	75
TapWorks	54	Newton Utilities	23
PCMCIA SOFTWARE			
Fodors 94 Travel Mgr	23	Berlitz Interpreter	65
Time Out Guide	38	Newton Enh Pack	90

ACCESSORIES

Design Keyboard	74	Extended Keyboard	128
Adjustable Keyboard	149	Desktop II Mouse	35
PlainTalk Microphone	20	Design Speakers II	46
MIDI Interface	53	Security Kit	34

CD-ROM DRIVES

APPLE			
CD300i+	145	CD300e+	172
D2			
2.4x External	170		
NEC			
3xp+	245	4xe	363
2xc 7-disc	349	Mac software	31
PIONEER			
DRM-602X 2x 6 disc	399	DRM-604X 4x 6 disc	865
TOSHIBA			
XM5201S 3.4x	195	XM3601S 4.4x	299
XM3501S 4x	325		

HARD DISKS

Bracketed figure is nominal capacity in Mb.

CONNER			
CFA540S (540)	199	CFA1060S (1.06Gb)	325
MICROPOLIS			
4110 (1Gb)	375	2217 (1.7Gb)	575
4221AV (2.1Gb)	730	3243AV (4Gb)	990
1991AV (9.1Gb)	1850		
QUANTUM			
LPS270S (270)	107	LT365S (365)	120
MV540S (540)	137	XP32150 (2.1Gb)	660
GP4280S (4Gb)	1390		
SEAGATE			
ST31230N (1Gb)	337	ST32550N (2.1Gb)	757
ST15230N (4Gb)	1090	ST410800N (9Gb)	2480
STORAGE OPTIONS			
500A	261	1000P	489

Compact, external hard drives for desk top use.

STORAGE OPTIONS

- SCSI - 2
- Fully packaged Including software & cable
- 48 hr. FREE swap-out
- Seagate drives

1Gb 9/10.5 msec £440
2Gb 9/10.5 msec £806
4Gb 8/9 msec £1373

EXTERNAL CASED HARD DISKS
Add together the price of the disk and case. Formatting, fitting and ID setting is free of charge

EXTERNAL CASES

3.5" Single Drive	60	5.25" Half Height	70
5.25" Full Height	120	5.25" Full Height x2	190

All with internal PSU

INTERNET

Each of our staff have an Internet address for direct correspondence. You can deal with accounts, purchasing and customer service departments through the 'Net. Please call for addresses.

LASERS

APPLE			
LW 300	409	LW 320	595
LW Select 360	999	LW Pro 630	1180
LW 16/600PS	1505	LW 16/600PS & fax	1540
LW 16/600PS & fax & modem			1599
BROTHER			
HL-10PS	1179	HL-10DPS	1299
CALCOMP			
CCL 600	2150	CCL 600ES	2475
CCL 1200ES	3005		
DIGITAL			
DECLaser Pro 5100	1089	DECLaser Pro 660	1170
DECLaser 3500	1495	DECLaser Pro 1200	2290
HEWLETT PACKARD			
LaserJet 5MP	695	LaserJet 4M+	1255
LaserJet 4MV	1969	LaserJet 4SiMX	2927
LaserJet Colour	4199		

HEWLETT PACKARD SUPPORT PACKS

LaserJet 5MP	695	LaserJet 4M+	1255
LaserJet 4MV	1969	LaserJet 4SiMX	2927
LaserJet Colour	4199		

ORIGINAL HP LASER MEMORY UPGRADES

Printer	1Mb	2Mb	4Mb	8Mb
4M/4SiMX/1200/PJ	69	119	189	329
5MP/4M+/4MV/Colour	69	119	167	329
4ML	59	-	-	-

QMS			
1060	1890	1660 PS	2670
ColorScript 210PS	2850	ColorScript 230PS	5980
MagiColor LX	4999		
TEXAS INSTRUMENTS			
MWriter PS23	499	ML 600 2Mb	599
ML 600 Plus 4Mb	699	ML Pro 600 23 Font	775
ML Pro 600 65 Font	949	Pro E	995
Power Pro 600	1025		

PRINTERS

APPLE			
StyleWriter II	188	StyleWriter Portable	209
Colour SWriter 2400	357		
CANON			
BJC 820 A3	1235		
EPSON			
Stylus Colour	319		
FARGO			
Primera Pro	1299	Picturra 310	3420
HEWLETT PACKARD			
SPECIAL DeskWriter 310 £126			
DeskWriter 320	165	DW 320 & ASF	177
DeskWriter 540	206	DW 320/540 Col Kit	28
DeskWriter 660C	293	Deskjet 850C	389
DeskJet 1600CM	1219		
LEXMARK			
PS 4079	2105		
TEKTRONIX			
Phaser 140	849	Phaser 140e	1049
Phaser 340	3995	Phaser 340+	5495

MODEMS

APPROVED Connection to telecommunications systems may be subject to approval for use outside the countries listed in Directive 91/263/EEC.

APPLE			
Geoport adaptor	96	Express Modem	285
520 Express Modem	315	Duo Express Modem	220
ANDEST			
RR Rocket Gold	135	RR Rocket Terbo Plat	135
VPA V22bis	349	VPA V32bis	399
GLOBAL VILLAGE *(Not BABT Approved)*			
Teleport Bronze II	87	Teleport Gold II	120
Teleport Mercury	250	Teleport Platinum	230
Powerport Bronze	89	Powerport Gold	215
Powerport Mercury	250	Powerport Platinum	299
HAYES			
Accura 144 + fax	159	Accura 288 + fax	189
MULTITECH			
Internet in a box	269		
PACE			
FX32+ Mac	150		
US ROBOTICS			
Sportster 14.4 + fax	125	Sportster 28.8 + fax	189

FEATURES

- Data Speeds; V.34 at 28,800bps, V.FC, V.32bis, V.32, V.23, V22bis, V.22, V.21, Fax:V.17 at 14,400bps, V.29, V.27ter
- V.42/V.42bis MNP 2-5 Error Correction/Data Compression
- Fax Class 1 & 2.0, Group 3
- Asynchronous operation
- Mac serial cable and MacComCenter software supplied
- BABT Approved

£189

ZOOM			
Zoom 144	93	Zoom 288	165

SCANNERS

AGFA			
StudioScan	485	StudioScan II	619
StudioScan II Tranny	269	Arcus II & Tranny	2299
APPLE			
OneScanner	435	Colour OneScanner	555
QuickTake 100	235	QT100+Photoflash 2	319
CAERE			
OmniScan	269		
EPSON			
GTx 6500	396	GTi 6500	566
GTx 8500	509	GTi 8500	695
GTx 9000	615	GTi 9000	802
Transparency Unit	436	Document Feeder	319
HEWLETT PACKARD			
Scanjet 3p	338	Scanjet 3c	599
MICROTEK			

ScanMaker IIXE

- 24-bit/16.7million colours
- 300x600 dpi optical resolution
- 1200x1200 dpi interpolated

- 21.6cmx35.6cm scanning area
- Three pass scan with RGB filter
- PhotoShop full version

£426

MICROTEK Scanners · Software · Support

Transparency hoods and auto document feeders are also available

Scanmaker II SP	545	Scanmaker III	1999
NIKON			
CoolScan External	1225	ScanTouch	870
UMAX			

UMAX SCANNERS

TRANSPARENCY ADAPTER & DOCUMENT FEEDER AVAILABLE FOR ALL SCANNERS

Vista-T630

- 24bit/16.7m colour scanning
- 300x600dpi optical resolution
- 4800x4800 max res. thru Ultra View technology
- 3 Pass, RGB filter
- VistaScan Software Driver

£449

Vista-S8LE

- 24bit/16.7m colour scanning
- 400x800dpi optical resolution
- 6400x6400 max res. thru Ultra View technology
- Single-pass, colour CCD
- VistaScan Software Driver

£725

Powerlook Pro

- 30 bit colour scanning
- 600x1200dpi optical resolution
- 2Mb input/output buffer
- Single-pass, colour CCD
- VistaScan Software Driver
- And more...

£2349

Vista T630	449	Vista T630 Pro	815
Vista S8LE	599	Vista S6 Pro	925
Vista S8LE	725	Vista S8 Pro	1050
Vista UC1260FE	1075	UC1260 Pro	1465
Powerlook Pro	2349		
VISIONEER			
Paper Port	299		

DAT STREAMERS

HP JETSTORE			
2000e 2Gb	741	5000e 4-8Gb	827
6000e 8-16Gb	920		
WANGDAT			
3100 Ext 2Gb	595	3200 Ext 4-8Gb	700
3400DX Ext 8-16Gb	795		

SYQUEST DRIVES

88Mb	245	105Mb	295
200Mb	369	270Mb	415

All inc cable, software & 1 cartridge

MO DRIVES

FUJITSU			
128Mb	569	230Mb	615
SONY			
128Mb D2	490	230Mb D2	560
1.3Gb	1425		

All inc cable, software & 1 cartridge

CD RECORDING

Philips CDD522 2x	1595	JVC XR-2001 2x	1499
Yamaha CDR100e 4x	2400	Ricoh RS1060 2x	1399
Toast CD-ROM	399	Toast CD-ROM Pro	599

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MONITORS

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APPLE

Performa Plus 14"	199	Trinitron 14"	235
Audio Visual 14"	315	MultiScan 15"	275
MultiScan 17"	570	MultiScan 20"	1305

FORMAC PRONITRON

80.17 17"	526	80.20 20"	1210
80.20HP 20"	1250		

IDEK IIYAMA

MF8115 15"	259	MF8617 17"	536
MF8221 21"	1247	MF9121 21"	1293
MF8621 21"	1645		

NEC

Multisync XV14	225	Multisync XV15	275
Multisync XE15	395	Multisync XV17	549
Multisync XE17	688	Multisync XP17	899
Multisync XE21	1329	Multisync XP21	1749

PANASONIC PRO SERIES

TX-T1537 15"	315	TX-D1732 17"	470
TX-D1751 17"	639	TX-D2032 20"	1119
TX-D2123 21"	1349	TX-D2103 21"	1408
445M092 21"	1415	445X092 21"	1599

PHILIPS

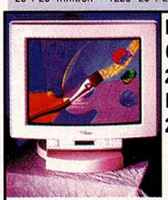
15B 15"	247	17C 17"	419
17T Trinitron 17"	639	17A 17"	643
20C 20"	775	20T Trinitron 20"	1299
21B 21"	1355		

RADIUS

20GS 20" 2pg GS	579	21GS 21" 2pg GS	780
Pivot GS	489	PrecisionCol Pivot	655
PrecisionColor 17	879	PrecisionCol 20V	1179
IntelliColor 20e	1385		

RASTEROPS CLEARVUE

20-T 20"Trinitron	1229	20-T Enhanced 20"	1650



RasterOps ClearVue 20T Multiscan 20"Monitor

£1469

- 30-82 KHz scanning frequency
- 50-160 KHz vertical frequency
- Maximum resolution 1280 x 1024
- Mac adapter cable
- Energy Star rating, MPRII
- 1 year replacement warranty

SONY

CPD-15SF1 15"	305	CPD-17SF1 17"	585
GDM-17SEIT 17"	827	GDM-20SEVT 20"	1225
GDM-20SEIT 20"	1419		

SUPERMAC

Supermatch 17T	689	Supermatch 21TXL	1419
PressView 21T	2630		

TAXAN ERGOVISION

580 15"	279	880 17"	489
885 17"	615	1080 20"	895
1095 20"	1299	2100 21"	1499

VIEWSONIC

VS15ES 15"	245	VS15G 15"	319
VS17G 17"	545	VS17-2 17"	679
VS20G 20"	1030	VS21PS 21"	1380

Adapters available if required. Please call for details.

VIDEO BOARDS

RADIUS

8xj 1152x882 8bit	425	24xp 832x624 24bit	415
24xk 1024x768 24bit	599	24x 1152x882 24bit	799
LeMansGT 30bit	1099	Thunder/24 GT	1135
Thunder IV GX 1152	1599	Thunder IV GX 1360	1899
Thunder IV GX 1600	2399	PhotoBooster	699
PhotoEngine	860		

RASTEROPS

Paintboard Prism	550	Paintboard Prism GT	869

SUPERMAC

VideoSpigot	309	VideoSpigot LC	190
Spigot Power AV	720		

ACCELERATORS

DAYSTAR

PowerPro 601	Call	Turbo 601 66Mhz	869
Turbo 040 33Mhz	489	Turbo 040 40Mhz	586
PowerCard 601	521	PowerCache 030	413

For full details please call

PLOTTERS

HEWLETT PACKARD

Designjet 220 A4 - A1	1486	D'jet 220 A4 - A0	2253
Designjet 600 A1	3255	D'jet 600 A0	3899
Designjet 650C A1	3750	D'jet 650C A0	5259
HP Designjet OSM	300		

ROLAND

Sketchmate A4	409	Sketchmate A3	545
DXY-1150	585	DXY-1250	710
DXY-1350	945	GRX-350	2379
GRX-450 A0	2968		

SUMMAGRAPHICS

Mono A1	1865	Colour A1	2345
Mono A0	2345	Colour A0	2680

NETWORK CARDS

APPLE

Ethernet NB	155	Ethernet LC	95
Ethernet NB TP	80	Ethernet LC TP	68
BNC/TP Transceiver	34	AUI Transceiver	54
CommsSlot Thin card	55	CommsSlot UTP card	55
CommsSlot AUI card	55		

FARALLON

EtherMac LC-TN BNC	79	EtherMac LC-10T UTP	75
EtherMac II-TN BNC	75	EtherMac II-10T UTP	79
EtherThin Printer/Powerbook/Netwon Adaptors			240

PLANET

Planet II Lite	650	Planet II Full	820

HUBS

3COM

FMS II 12port+AUI	379	FMS II 24port+AUI	670

ASANTE

Hub/8 8port+BNC	160	Hub/12 12port+BNC	330

DAYSTAR

MiniHub 5	160	MiniHub 8	190
Stack 12	570	Stack 24	1030

D-LINK

DE809TP 8port			130
DE812TP+ 12port & BNC & AUI			175
DE816TP 16port & BNC & AUI			235
DE824TP 24port & BNC & AUI			352
DE1200 12port & BNC & AUI stackable			299
DE1600 12port & BNC & AUI stackable SNMP			525

FARALLON

Ether10-T Starlet/4	130	Ether10-T Starlet/8	170
Ether10-T Starlet/16	370		

HP ADVANCESTACK

Hub 12	325	Hub 24	550
Hub 48	1045	Hub 12 SNMP	480
Hub 24 SNMP	719	Hub 48 SNMP	1129

SMC

TigerHub TP6 6Port WorkGroup UTP			155
TigerHub TP6B 6Port WorkGroup UTP			170
TigerHub CX6 6Port WorkGroup BNC			430
TigerHub FL6 6Port WorkGroup Fiber			971
TigerHub TP12 12Port WorkGroup UTP			295
TigerHub CX3 3Port WGroup BNC			210
Elite 3812TP 12 & 2 port stackable UTP			399
Elite 3812TP 24 port stack bundle UTP			840

CONSUMABLES

DISCS	10	100	250
Unbranded 1.44Mb DSHD	50p	40p	35p
Branded 1.44Mb DSHD	60p	40p	35p

CD RECORDABLE	1	10	100
650Mb/74min	10	8	7

CABLES	2m	3m	5m	10m
Macintosh Printer	5	-	8	15
Ethernet Coax BNC-BNC	5	-	8	10

	1m	2m
SCSI C50M-C50M	8	15
SCSI C50M-HC50 Micro D	19	29
SCSI HC50 Micro D - HC50 Micro D	29	39
SCSI C50M-HC68 Wide SCSI	65	-
SCSI HC50 Micro D - HC68 Wide SCSI	65	-
SCSI D25M-C50M	6	19

ADAPTORS

BNC Twist-on	2	BNC T-Piece	2
BNC Terminator	5	SCSI C50 Terminator	10

ORIGINAL INKJET CARTRIDGES

SWriter Pro HiCap Blk	8	SWriter Pro Colours	7
A3 Colour Black	16	A3 Colour Colours	18
SWriter 2400 Black	20	SWriter 2400 Col	31
Epson Sty Col, Black	12	Epson Stylus Col, Col	29
HP DW 310/320/Port	15	HP Deskwriter Black	18
HP Deskwriter Colour	18	HP DJ 1200CPS Black	17
HP DJ 1200CPS Colours	24	DJ 850C/1600CM Blk	20
HP DJ 850C Colour	25	HP DW 660C Black	19
HP DW 660C	20	HP Paintjet Colour	20
HP Paintjet Black	18	HP Paintjet XL Black	15
HP Paintjet XL Colours	17	HP Paintjet XL300 Blk	15
HP Pjet XL300 Colours	17		

TONERS

Personal LW300/320	45	LW Select 300/310	49
LW Select 360	71	LW 16/600 Pro 630	91
LW Pro 810	200	HP Laserjet 4ML/4MP	43
HP IIIsi/4SiMX	85	HP Laserjet 4M/+	68
HP Laserjet 5MP	69		

DATA CARTRIDGES

2Gb/4Gb 90m DAT	16	4Gb/16Gb 120m DAT	20

MO DISCS

128Mb 3.5"	25	230Mb 3.5"	39
1.3Gb 5.25"	75	1.5Gb 5.25"	95

SYQUEST CARTRIDGES

44Mb	29	88Mb	36
105Mb	36	200Mb	52
270Mb	41		

DIGITISERS

CALCOMP

A5 DrawingSlate	285	A4 DrawingSlate	365
A3 DrawingSlate	515		

SUMMASKETCH

III A4	210	III Pro A3	450
FX A4 4btn cursor	275	FX A3 Pro	495

WACOM

ArtPad	129	ArtPad+Dabbler	170
ArtPad+Painter 3	375	A5 Tablet+Painter 3	505
A5 Tablet	255	A4 Tablet	430
A3 Tablet	671		

SOFTWARE

ACCOUNTING

MYOB 3.0	170	Ritz Accounting	239
Sage Bookkeeper	110		

BUSINESS

ACT 2.0	145	ARoute Exp GB & Ire	89
Claris Organiser	39	Lotus Notes Express	135
MS Mail 3.1	173	MS Project 3.0	289
Now Contact	59	Now Up-To-Date 3.0	59
Ritz Meridian	132	Symantec C++ Pro	213

CAD

MiniCAD 5.0	399	TurboCAD	69

COMMUNICATIONS

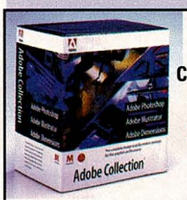
Connect II	120	Fax Pro	69
Snatcher 1	35	MicroPhone LT	39
MicroPhone II 5.0	149		

DTP & FONTS

Acrobat 2.0	120	Acrobat Pro 2.0	355
Adobe Type Manager	26	Fontographer 4.1	335
Home Publisher	59	PageMaker 5.0	379
QuarkXPress 3.3	547	QuarkXPress PMac	625
Super ATM	59	Typestry 2.1	150
Type Reunion	42	Type Styler	97
Type Twister	29		

DATABASE

4D First	79	FileMaker Pro 2.1	89
MS Fox Pro 2.5	55		



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Cricket Graph	99	Dabbler	65
Debabelizer Lite	88	Dimensions 2.0	95
Envelopes	75	Fetch 1.2	99
Font Studio 2.0	245	Freehand 5.0	288
Gallery Effects	245	Illustrator 5.5 CD	269
Infini-D	399	Intellidraw	89
Jag II	79	Kai's Power Tools	95

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KPT Bryce	95	KPT Convolver	95
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LogoMotion	99	MacDraw II	125
MS Powerpoint	255	Painter 3	225
Painter X2	89	Paint Alchemy	67
Persuasion 3	224	Photoflash	150
Photoshop 3.0	389	MS PowerPoint	279
Premiere 4	388	Quicktime Starter kit	49
Sketch	499	Sketcher	79
Streamline 3.0	89	Video Director	49

INTERGRATED PACKAGES

Claris Office	429	Claris Works 3.0	99
MS Office 4.2	329	MS Works	89
WordPerfect Works	140		

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All applications are fully integrated and will work across platforms.

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SOFTWARE

OCR

OmniPage Direct	70	OmniPage 5	289
OmniPage Pro 5	355	Text Bridge 3	69

TextBridge for MAC

- Easiest OCR to use - just hit GO!
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- Technology from PARC for increased accuracy
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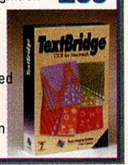

UTILITIES

Access PC	65	After Dark 3.0	24
After Dark Collection	48	Connectix PBook Utils	59
Connectix DT Utils	59	DiskDoubler Pro 1.1	59
MacLink + PC 7.5	129	MacLink + Trans 7.0	93
Mac PC Exchange	115	Mac Tools Pro 4.0	78
Norton Utilites 3.1	72	Now Utilities 5	59
Pyro 4.1	25	RAM Doubler	48
Ready Set Go	170	Remote Acc Client	55
Remote Acc Server	170	Restrospect	145
Retrospect Remote	255	SAM 4.0 with subs	95
SAM 4.0 no subs	49	Stacker	52
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Suitcase 2.1	45	System 7.5	59
Timbuktu Pro	105		

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MS Word 6.0	225	WordPerfect 3.0	45

MICROSOFT

Ancient Lands	35	Art Gallery	35
Cinemania	33	Creative Writer	33
Dinosaurs	35	Bookshelf 94	65
Encarta 95	65	Fine Artist	33

LEISURE

A10 Attack	42	A-Train Classics	19
Another World	25	Arthurs Teacher Trou	23
Chess Master 3000	23	C.Yeagars Air Combat	28
Crystal Quest 2	22	Crystal Crazy	34
Dark Seed	26	Dracula Unleashed	29
Harpoon Classic	19	Lemmings	25
Loony Labyrinth	24	Loony Tunes S Saver	24
Marathon	39	Monkey Island II	29
MS Flight Sim 4.0	32	PGA Tour Golf II	26
Prince of Persia 2	29	Sherlock Homes 3.0	29
Sim City 2000	26	Sim Tower	29
Spectre Supreme	28	Theme Park	33
Wolfenstein 3D	28		

LEISURE CDs

7th Guest	28	Flight Commander II	34
Flying Nightmares	32	Hell Cab	35
Jump:David Bowie	32	Myst	32
Theme Park	33	Rebel Assault	35
Return to Zork	35	Spectre VR	32
Star Trek Interactive	39		

EDUCATION

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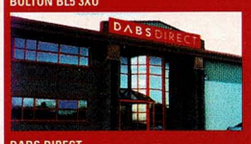

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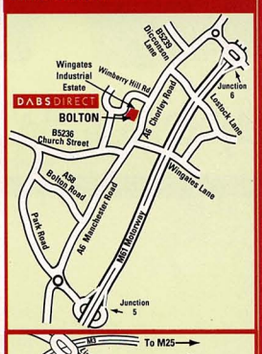

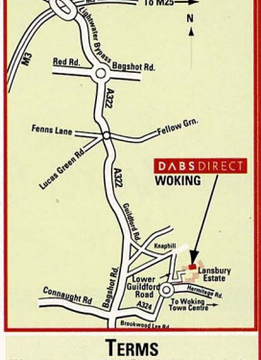

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Pardon my French

Computerised language translations – your ticket to communicating with the rest of the world, or a waste of time? David Pierre Roberts helps you mind your language.

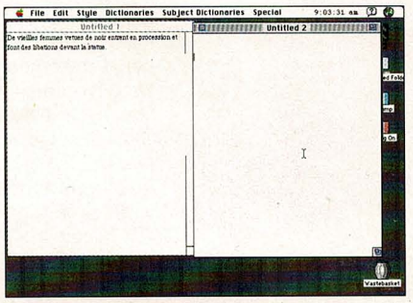
Forgiveness, gentleman, the station, if it pleases you? So you probably got the gist of what this imaginary person (obviously a lost Frenchman reading straight out of his English phrasebook) is asking you, but let's face it, it's not particularly attractive English, is it? The fact that the French for 'Please' is 'S'il vous plait' and that if you translated that literally, you would end up with 'If it pleases you', proves that direct and logical translations from one language to another will more often than not turn into gibberish.

If this is the case, you might be excused for believing that there is no way of bringing together the power and automation of the logical computer with the inflections and nuances of European languages which have developed over the centuries. And to a certain extent, you'd be right. There is no way you could pick up *Hamlet* and force it through a computerised translator, and expect it to be comprehensible in the other language. And vice versa. Let's take the BBC's *Get By In French*, and put it through one of our computerised translators. The first line would end up looking something like this: 'When this is that do you serve the breakfast, if does he please you?' Whereas the approved official translation of that sentence done by a real, breathing human being – with powers of understanding lingual nuances as standard – looks like this: 'When will you be serving breakfast, please?' Now, that's better.

It's not all doom, gloom and negativity though. There are some types of translation which can surely benefit from computerisation. Business to business correspondence is possibly one of them – even though I have heard of the odd deal that bombed because of a misused word or phrase. For example, signing off 'Yours faithfully,' and translating that literally into French, could have certain amorous connotations which you probably wouldn't like a potential business partner to misunderstand – then again, it all depends what kind of business you're into. Many business letters have a fixed format, especially in France, and once you've tweaked the English version, there are few reasons why your Mac could not deal with translating it into standard business French.

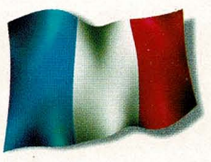
The problem computers have, is that they have to deal with translating words which, more often than not, have several meanings. Not too much of a problem here, you would reckon, because you can program it to know which meaning it has according to what other words are around it. But we all know (well, should know, anyway) that even English grammar doesn't always have these hard and fast rules. Some French words have different meanings just because of the situation you are in, and others become positively insulting in different parts of the country. To make things even more complicated, some words in all languages change their meaning almost overnight – have you ever heard a French or German holiday maker describe himself as being a gay person? It does tickle you, but can be quite embarrassing for the visitor.

So how does a computer get around these problems? The answer is simple: it has to bloody well learn – like the rest of us. The two packages reviewed here (*Power Translator Pro* and *French Assistant*) both offer editing facilities, and this is how, bit by bit, you could turn your Mac into a very useful translating tool. Every time it churns out a dodgy translation, you can tell it what the real translation should be and store it for future use. So far, these packages have only ever been assistants, churning out draft translations which in some cases need tweaking, and in others require major re-wording.



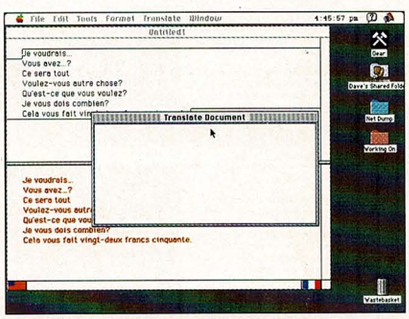
Putting Jean-Paul Sartre through the translation mill might help your philosophical understanding. Then again...

But, a-ha. You've spotted the snag. To be able to do this properly and to any significant depth, you have to employ somebody who is bilingual – or at least damn good at French. What this most probably means, is that translation packages are still at the development stage. This is one area which has yet to be cracked by the electronic buddy we all keep on our desks, but I cannot imagine them giving up just yet. What they need to do is use these packages in day-to-day situations, store all the amendments, and then release a package with all these phrases stored in the memory. *Power Translator Pro* is definitely the closest there is to this ideal, but it still stumbles over some pretty basic words and phrases.



Need a little help from your French phrasebook? Well, don't look to your computer for a helping hand.

Just imagine when they do finally crack it though. It may still be a specialist area, but the benefits could be massive. The European Commission could slash its translation costs (a good half of its overheads) and settle for software instead, saving the tax payer loads of money.



But let's stop dreaming. The perfect translation package has yet to be invented, because it would have to include all the phrases ever used in speech and in writing and what they mean in every single situation, and in every language. Just imagine the size of the database!

Continued on next page

Power Translator Professional

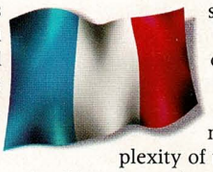
If you are going to get a translation package, you obviously have more potential use for it than just writing to your French penpal two or three times a year. And if you do, then you might as well go the whole hog, and spend proper money on a professional package. *Power Translator Professional* is just that. Professional.

It has been derived from translation software previously reserved for mainframe computers used by the likes of *National Geographic* to translate its international correspondence and by the Canadian Government to satisfy the need they have for bilingual documentation. So Globalink are no novices in the translation game, but *Power Translator Pro* is their first try in the home computing industry.

When you type in your French or English document, *Power Translator Pro* looks at each sentence, finds the words and phrases that match the ones in its dictionaries, and translates the sentence as a whole. *French Assistant*, by contrast, translates most of the sentences word for word, which usually results in a literal translation that makes little sense.

Once you've translated your document, it is important to realise this is only meant as a first draft. If you're just typing in a letter you received from a French friend or business partner, this first draft should be enough for you to understand what they're talking about. But if you're writing a letter in English and want to send it to a French company, it would be wise to get somebody with a soupçon of French to have a look at it.

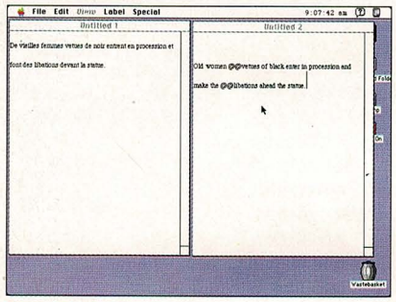
So, in practice, you use *Power Translator Pro* to produce draft translations of documents you key straight in or import from other word processors. But once you edit the dictionaries – there are two: a single word dictionary and a semantic unit dictionary which contains phrases and idioms – you should put the document through a second translation to ensure a much better result. You can buy *Power Translator Pro* without the dictionaries for much less money and build up your own instead, but it is precisely the dictionary facilities that make this program so good.



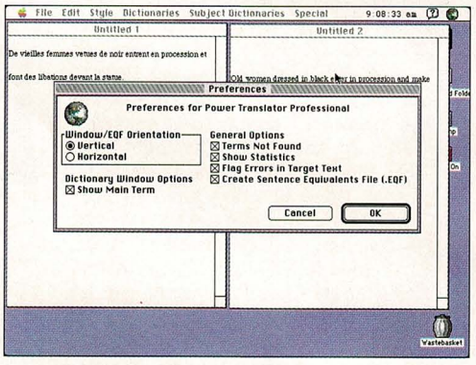
The semantic unit dictionary is undoubtedly *Power Translator Pro's* strength. Earlier I said that the perfect translation package would be the one which had all the phrases ever used in an enormous database with a proper translation linked to it – well, *Power Translator Pro* is close to having that. You can get extra subject dictionaries which bolt on to the main program. So if your line of business is computers, for example, then you need to have technical translations of specialised words and sentences which are relevant to the computer industry – it's all there in the dictionary. There are a number of other specialised subjects you can procure including Legal, Banking, Chemical, Automotive, Aviation, Business/Finance, and Petroleum. Specialised, I hear you say. Yes, very specialised.

Power Translator Pro is not only the more professional of the two packages, but it is also the faster. A one page document (depending on the complexity of the language used) takes only a few minutes to translate, whereas *French Assistant* crawls. The support from Globalink is very obvious, as they are continuously updating and working on the subject dictionaries and the program itself.

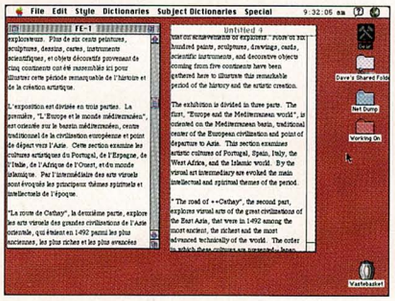
If you really need a translation tool in your office or home, and are prepared to spend this kind of money for it, then *Power Translation Pro* is definitely the right one. However, never forget that, so far, no package has managed to perform perfect translations by itself. You either need to know a bit of French yourself (in which case you probably could have translated the document yourself), or have access to somebody who does. **MF**



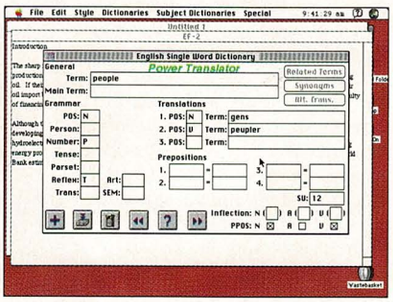
Power Translator skimps on presentation, but its depth beats other applications on the market hands down.



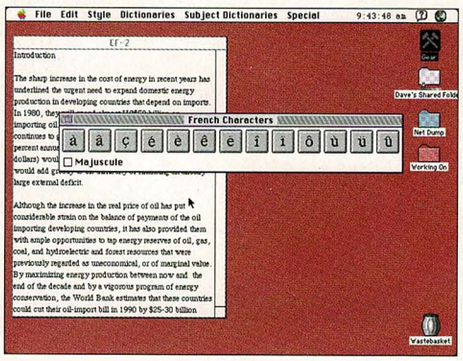
Basic Preferences let you control just a fraction of the application. It's mainly a database of terms and phrases. That's it.



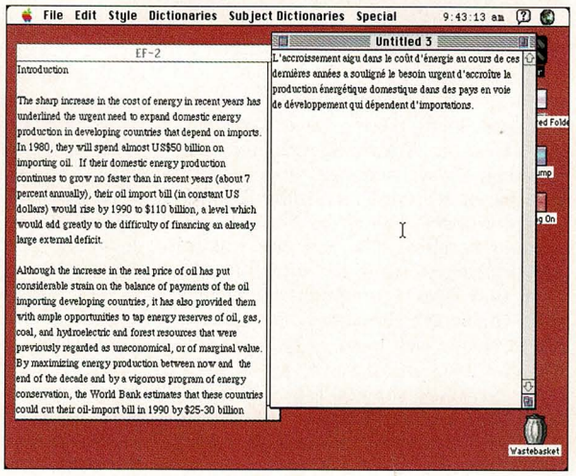
Translating long passages from books will take a while in either translation package.



This is where and how you can edit a phrase or word to make it have several translations and meanings.



Remember, you'll have to know where to find your French characters on your Mac keyboard.



You can choose to make *PT Pro* translate a sentence at a time, a paragraph at a time or even an entire book.

POWER TRANSLATOR PRO

Price: £468.83. Same program with no dictionaries: £159.80. Out: now.
Requires: 20Mb hard disk space minimum, 2Mb free RAM, System 7.0 or later.
For more details contact Globalink Europe on 0800 752752.

MACFORMAT RATING **80%**

French Assistant

The manual introduces *French Assistant* in the most honest way yet: 'This program should be used as an assistant, not as a replacement for a human translator.' Well, quite. But for the cost, it could be a sound investment if, say, you write to friends informally, and they don't mind reading a literal translation too much.

The phrase, 'Forgiveness, gentleman, the station, if it pleases you?' was no joke, it came straight out of *French Assistant* when I keyed in the French for, 'Excuse me, sir, where is the station, please?' The reason it failed to come up with that phrase is simple: the application translates mostly word for word, and then applies grammatical rules to the sentence. I hope you realise this doesn't necessarily mean the sentence you'll end up with will be grammatically correct.

Thankfully, Microtac include a number of tips in their manual which, if you stick to them, will give you a better translation. An example of a tip from French to English is, 'Use concise, straightforward text...' But as anyone who's at all fluent in French will know, this isn't a language that can often be kept concise or straightforward.

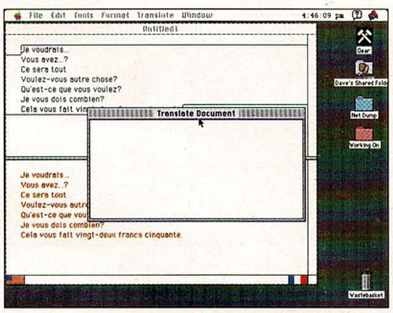
The tips for translating from English to French are similar – avoid passive voice, do not use idiomatic phrases, do not omit words like *that*, *which* and *who*, do not split separable English verbs (write 'I have to look up the word in the dictionary,' not 'I have to look the word up in the dictionary'), etc...

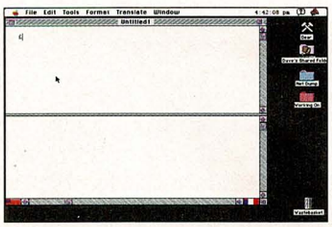
Once you've waded through all the things you can't do which are perfectly normal English usage, you start wondering what this application actually does for you. Well, as we said earlier, it can assist you in translating words and certain phrases. If you're learning French, this application will help you improve your written French, and the more you learn, the more you'll be able to correct the translations *French Assistant* churns out.

Power Translator Pro isn't the only package offering editable dictionaries, and *French Assistant* even has an Inflections section to the dictionary where you can add phrases and idioms. If you keyed in 'French stick', for example, the program would translate that literally to 'baton français', which is completely *wrong*, because we all know that a French stick is a baguette. Okay, so these days we are more likely to use the French word 'baguette' than anything else, but you'd have to edit the dictionary, so when the application next encounters the phrase 'French stick', it translates it as 'baguette'.

You can translate in two ways in *French Assistant*, but both take longer than *Power Translator Pro* for the same text. When using the first method, you just type in (or import from a word processor) some text and choose whether to translate the entire document or just a sentence at a time. Once it's gone through what seems a painfully long process, you'll probably end up with some correctly translated sentences and some really bad ones. The second method is usually much more useful. Once you have your text, select 'Interactive translation' from the Translation menu, and a dialogue box appears showing you what's being done to your beautifully constructed sentence. The best bit is that the program will stop on words with more than one meaning and give you the choice of translations. This is the only way you'll get a higher proportion of correct translations. The catch? Oh yes, you must know which is the correct translation in that particular context.

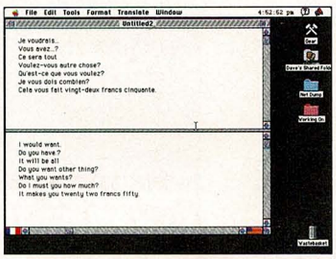
So it's back to square one. If you want an application that will translate from English to French or vice versa without you needing to know any French and/or English, then forget it. *French Assistant*, like *Power Translator Pro*, is only as good as its user, but it suffers rather from a lack of the dictionary support that *Power Translator Pro* so eagerly demonstrated with its specialised subject dictionaries. **MF**

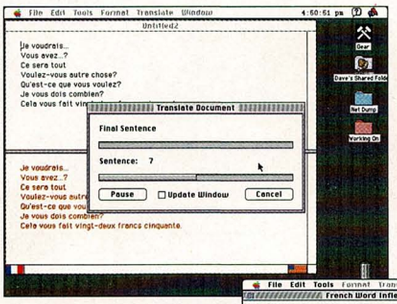




Presentation is a little better than *PT Pro*, but nothing much to write home about.

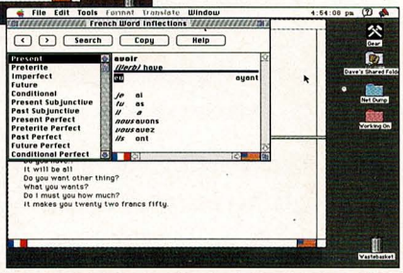
This is the test – putting classic phrasebook sentences through.





At least the text is in different colours to help you realise which is in French and which is in English.

French Assistant looks at each word separately and then applies grammatical rules to the result.



Editing capabilities in *French Assistant* are very powerful, but sadly you have to build the dictionary almost from scratch.

Text book vs French Assistant

We took a classic phrasebook conversation straight out of the BBC's *Get By In French* and put it through *French Assistant* with varied results.

1. A quelle heure est-ce que vous servez le petit déjeuner, s'il vous plaît?
When this is that do you serve the breakfast, if does he please you?

2. A partir de sept heures.
Starting from seven hours.

3. Jusqu'à quelle heure?
Until which hour?

4. Jusqu'à dix heures.
Until ten hours.

5. D'accord.
Okay.

6. Merci.
Thank you.

7. Quest-ce que vous prenez, Marie-Pierre?
What you takes, Marie-Pierre?

8. Un bon steak saignant pour moi.
A good rare steak for me.

9. Et comme légumes?
And like vegetables?

10. Des pommes frites, des haricots verts...?
Some apples fried, some string beans...?

FRENCH ASSISTANT

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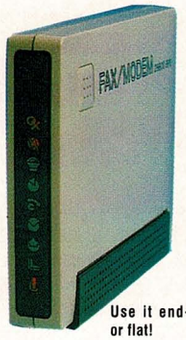

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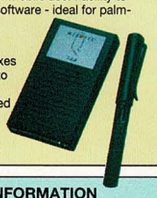

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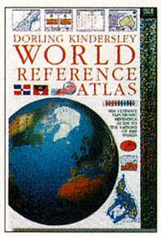

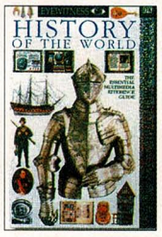

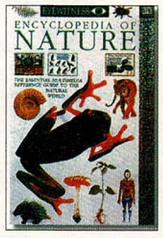

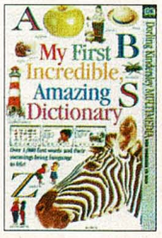

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British and Continental films are included, and films from elsewhere, but Hollywood dominates.

Cinemania '95

With the latest version of Microsoft's film reference work, you have the chance to become one of those annoying film buffs who know their Altman from their Zeffirelli and back again.

Cinema has been the entertainment medium that's defined the 20th century, with its flickering images in a darkened room stirring our hearts. Its appeal survives despite the growth of TV and lately CD-ROM – it is films that get us talking about characters and ideas with the most passion. The aptly-named *Cinemania* is an exhaustive piece of reference, which gives you a guide to film's most magical moments – and its worst.

Cinemania holds thousands of film reviews on its CD-ROM. These are taken from the popular annual guide *Maltin's*, and are supported by reviews from other sources – notably film critic Pauline Kael. With the program controls, you can choose which reviews you want to read by making selections based on a number of criteria.

As well as reviews, there are many famous clips, extracts from sound tracks and stills from the movies presented here. These offer nothing that a video or book couldn't give you more successfully, but they do liven up the presentation.

Yet it's the controls that make *Cinemania* so useful. You can flick through a reference book easily enough if you know which film you're looking for – but *Cinemania* helps you find films you've never heard of. You can make selections like French romances from the 1960s or American action flicks of the 1980s – it all depends on your taste.

American English

It's when you're searching for a favourite film that you come across a niggling problem – the American titles are used instead of the ones we know in Britain. So you won't find the wonderful Powell and Pressburger production *A Matter Of Life And Death* – it appears under the unlikely name of *Stairway To Heaven*. But until a British film guide can appear, it's something you'll have to tolerate.

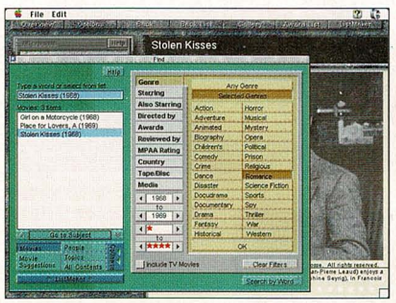
The theme of buried treasure is continued with Cinemania Suggests, a section of preselected films of different genres – like 25 Westerns. If you have little knowledge of the great films, start here – but you'll soon be ready to venture further into the main part of the program.

If the sheer breadth of choice and things to discover seems overwhelming, there's a listing facility that enables you to keep notes on the nuggets you've found, ready to go and watch later. A list of video stores is provided within the program, although there are no British shops listed. But just wait – it won't be long until programs like *Cinemania* offer direct Internet connections to on-line video stores where you can place an instant order for any film you like. My wallet is trembling at the thought.

There are nearly 20,000 films and TV movies reviewed on this one disc. No doubt some buffs will find an obscure favourite hasn't been mentioned, but most people will probably have their eyes opened at the astonishing number of films that have been made. In tandem with a good video store, *Cinemania '95* can easily introduce you to some wonderful stories that you never would have discovered otherwise.

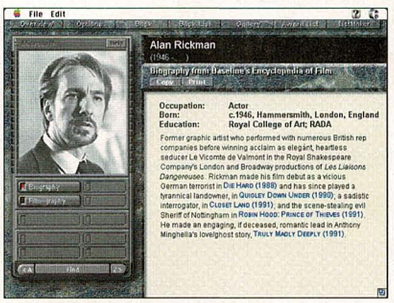
RICHARD HILL

Looking for a video to rent? Discover what the critics thought of films like *Heathers* with the help of *Cinemania's* database of reviews.



Want to see a good 1960s French romance? No problem! *Cinemania* can find it for you with its customisable filters in a jiffy.

You can use the filters to uncover a little-seen Bergman film or the most popular animated classics, such as *The Little Mermaid*, shown above.

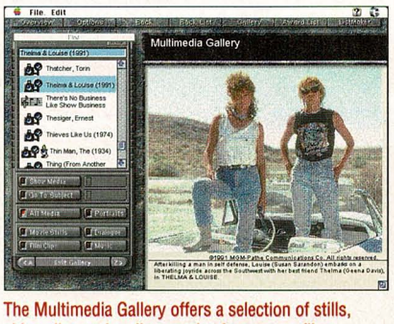


Cinemania has biographies of famous and obscure directors, actors and behind-the-scenes types. Alan Rickman must be everyone's favourite villain.

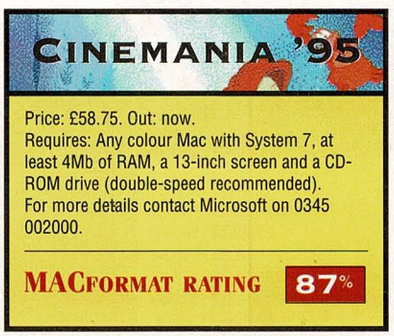
DISASTER MOVIE

Alan Smithee, director of such great movies as *Shrimp on the Barbie*, doesn't really exist. Smithee is a pseudonym traditionally used by directors who wish to remain anonymous.

Ah, Saturday afternoons watching black and white films on BBC2 or Channel 4. Hang on, surely *Stairway to Heaven* was by Led Zeppelin, not David Niven?



The Multimedia Gallery offers a selection of stills, video clips and audio samples from many films. *Thelma & Louise* was the film to see, summer '91.



Price: £58.75. Out: now.
Requires: Any colour Mac with System 7, at least 4Mb of RAM, a 13-inch screen and a CD-ROM drive (double-speed recommended).
For more details contact Microsoft on 0345 002000.

MACFORMAT RATING 87%

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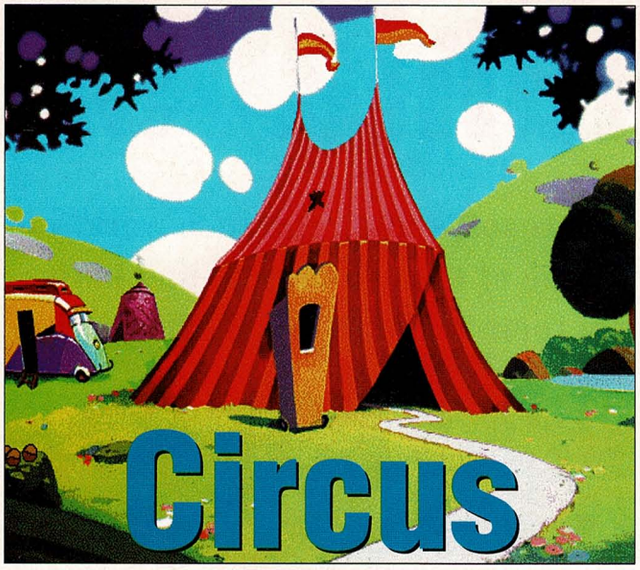
Get *Cinemania* absolutely free when you buy the Apple CD300E Plus for only £199 plus VAT and delivery! The CD300E Plus is a caddyless double-speed drive that can play PhotoCDs and audio CDs as well as CD-ROMs. See our mail order section (page 113) in MACFORMAT 25.

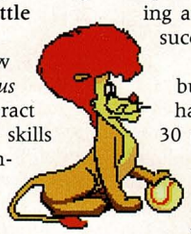


Real life circuses just can't compete with this CD-ROM. There's no need to worry about mistreated animals, you can explore behind the scenes, the acrobats won't die if they miss and the clowns are even funny.

Designed for those software connoisseurs among us aged from three to seven, *Circus* is an interactive cartoon which goes beyond the click-and-discover treatment adopted by the best-selling Living Book series from market leaders Brøderbund. So while it shares the excellent graphics and sounds of titles like *Just Grandma and Me* and *Arthur's Teacher Troubles*, *Circus* offers more than just a Big Top show your children can settle down to explore.

They can either choose to view eight brilliantly animated *Circus* acts, or go backstage and interact with the characters to develop skills of observation, memory and intuition. It's a neat enough theory and one which works well because throughout proceedings a great deal of care has been taken to make sure *Circus* is a fun, yet educational, exercise. At any point your child can call up Zippy the mouse guide to help him or her understand the various tasks and puzzles being set. But there's not a great deal to confound even the youngest user – my three year old got along with it quite happily for a whole hour and that's a long, long time for her.

This level of attraction is made possible by nothing more than the first-class animation illustrating the wacky acts. Even on the minimum Mac set-up, the speed of full screen animation leaves no undesirable wait-states, while the quality of illustration and colour is top-notch too. The antics of clowns with cars, lion taming, human cannons, high-wire acts and magicians, dancing elephants and jugglers are all combined with user participation. So, for instance, in the human cannonball section, you can see what effect different amounts of gun powder have on the trajectory of the clown being fired, or, in the trapeze section, you can perfect the timing and position of the artistes so they successfully catch each other.

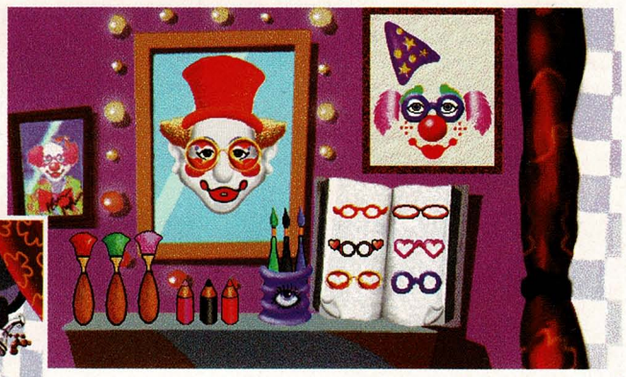


These acts are a complete delight, but the backstage areas probably have more longevity. *Circus* has over 30 different screens to discover – including the magic trunk, lake, music tent and clown's trailer. You can spend as long as you want here, playing a range of instruments or designing your own clowns.

All in all, *Circus* is a quality piece of software, made even better by a sense of atmosphere, aided by background music and sound effects. It's easily the nearest thing to what you might imagine interactive children's TV to be like in the coming years, fusing Disney quality cartoon figures with smooth animations and transitions between scenes. If anything, its only minus point is that there's not enough on offer, but that's just an adult's view. For the age range it's aimed at, *Circus* is full of exciting exploration and will amuse your children for hours.

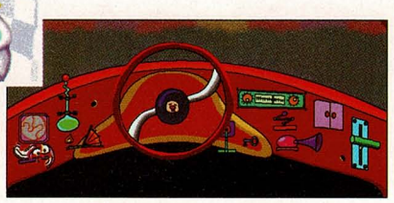
ANDY STORER

Going into the big tent brings up this menu screen with each of the eight acts all ready to strut their stuff.



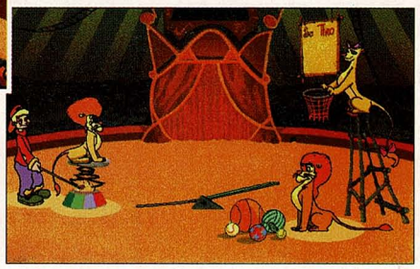
Or head for the clowns' trailer to help them get made-up. Good job we're not employed full-time.

Elsewhere in the clown's trailer you can explore all the belongings held dear by these professional nutters.



Choosing the clowns takes you to Max and Dynamite – an odd couple who need help fixing their car. Here's its peculiar dashboard.

Or you can go for the high wire act and assist this pair of aerial artistes in mastering the trapeze.



Here you can indulge in a little lion taming – or, to be more precise, teach them how to play basketball properly.

CIRCUS

Price: £39.99.
Requires: Mac LCIII or better with 5.5Mb free RAM, colour monitor, System 7 or later and a CD drive.
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MACFORMAT RATING 85%

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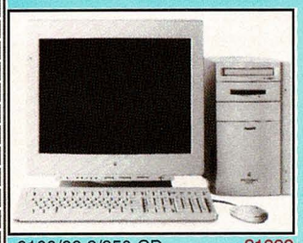

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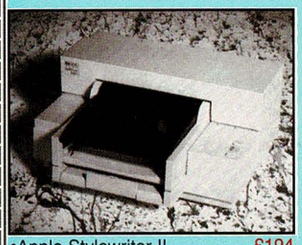

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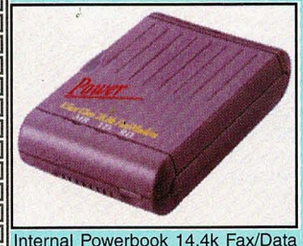

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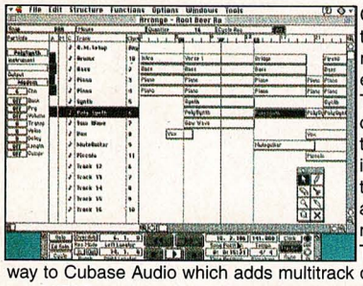

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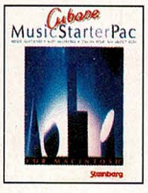

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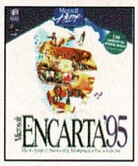

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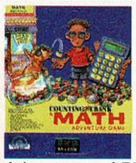

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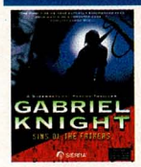

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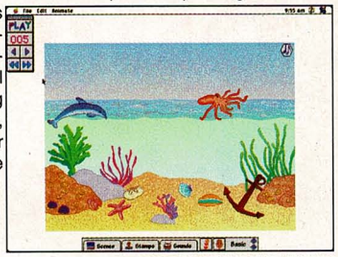

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Bob Dylan

Highway 61 Interactive

Bob Dylan's musical legacy stretches back over 30 years. From protest singer to CD-ROM title, the times certainly are a changing, but Bob's popularity remains a constant.

Bob Dylan is a rock legend, as they say. For folk, rock, blues, you name it, Bob's played it. And what's more he's played it damn well. He's more famous than Michael Barrymore – so famous, he's even had a CD-ROM made about him (Barrymore hasn't – yet).

The disc celebrates Bob's musical career, from the early folk days right the way through to the Bob Dylan 30th anniversary concert at Madison Square Garden. On starting, you're presented with a collage of memorabilia related to Bob's life. As you move the mouse, the pointer changes to indicate where you can travel. A guitar pointer means there's something to watch or listen to, a hand means you can move in that direction. At first it's a bit confusing, and sometimes the pointer doesn't relate to the possible actions, but you learn to accept these irritations and progress then becomes easy.

The rewards are a joy to watch. Sure, the graphics are brilliantly-rendered thousand-colour pictures, but everything gels so perfectly. Rather than QuickTime rectangles with people talking, the video image blurs at its edges, or fits snugly into the background scenery, as if it was meant to be there. It is this attention to detail that makes *Bob Dylan* a pleasure to watch. Every video sequence has been altered to blend with the atmosphere. Click on the television in one of the bars and it switches on, complete with a few seconds of picture roll as the equipment warms up, then supplies you with more information about Bob and his life.

Interaction

In this way you can listen to people from Bob's past and learn more about the man and his music. The information is stored rather cryptically in locations from Bob's past – such as Greenwich Village or his recording studio – so you have to find the information rather than sit back and wait for it to appear. This can lead to random clicking on all the objects in a room and sometimes you have to click on an object several times to get all the story, but once you find something new it is rewarding. In one bar, clicking on the radio starts up a radio programme. With each subsequent click the presenter tells you more.

This program is for Bob Dylan fans and never tries to be anything else, so don't expect to just hear a greatest hits collection. The CD-ROM merges Bob's music with his ideals and life, and succeeds in doing so. One video sequence shows images of war to complement the song that is played, creating a powerful effect.

Of course the CD-ROM has its problems. Because it's designed as a walk-around adventure, discovering as you go, it can be frustrating waiting for the pictures to load off the disc only to discover they don't give you with anything new. And listening to a song only to hear it cut short after a verse can become annoying.

This is especially true when browsing through the song database. Every song Bob ever wrote (over 500) is listed, with the lyrics to read. About a tenth of these can play a snippet of the song. For those who hope to hear most of Bob's songs this isn't enough, but considering the limitations of the CD-ROM's storage and the balance between song content and history, the programmers have done well.

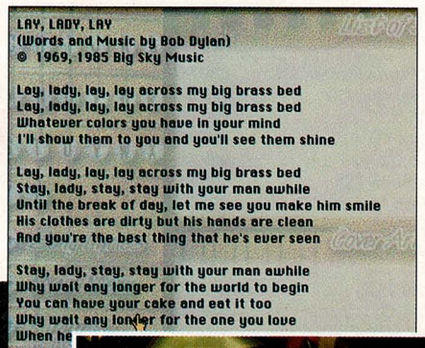
The CD has tried to escape from simply providing a documentary on disc, and its completely interactive design has achieved this. If you want to know about Bob Dylan's life and his achievements, look at accurate re-creations of places in his life, and watch historical footage, this CD-ROM is for you. If you want to hear him sing, go out and buy *The Best of Bob Dylan* on audio CD.

NICK HARPER

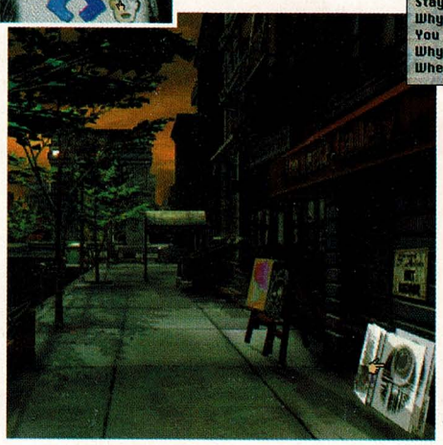
BOB'S YER UNCLE

Robert Allen Zimmerman was born in 1941 and changed his name to the first name of one of his favourite poets, Dylan Thomas. His extended career has prompted some unkind critics to suggest he now should adopt the monicker Robert Zimmerframe.

You can even look at original art by Bob Dylan. See how the art blends into the background drawing.

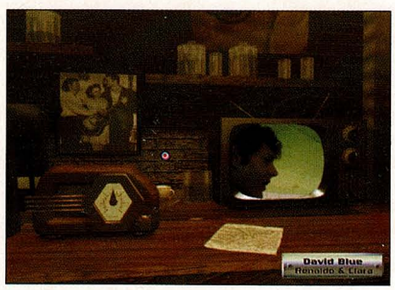

LAY, LADY, LAY
(Words and Music by Bob Dylan)
© 1969, 1985 Big Sky Music
Lay, lady, lay, lay across my big brass bed
Lay, lady, lay, lay across my big brass bed
Whatever colors you have in your mind
I'll show them to you and you'll see them shine
Lay, lady, lay, lay across my big brass bed
Stay, lady, stay, stay with your man awhile
Until the break of day, let me see you make him smile
His clothes are dirty but his hands are clean
And you're the best thing that he's ever seen
Stay, lady, stay, stay with your man awhile
Why wait any longer for the world to begin
You can have your cake and eat it too
Why wait any longer for the one you love
When he

You can read the lyrics to every song, although most don't have accompanying music to listen to.



In Greenwich Village you can find information by looking into shops and on billboards.

Clicking on parts of the collage plays video footage, songs, or takes you to a part of Bob's history.

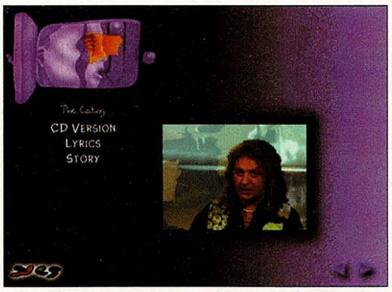


The video sequences merge into the scenery beautifully, evoking a great sense of atmosphere and making you feel like you're really there.

BOB DYLAN HIGHWAY 61

Price: £34.95. Out: now.
Requires: Any colour Mac, 8Mb RAM, 10Mb hard disk, System 7.0.1 or later, a 13-inch screen, and a double speed CD-ROM drive.
For more details contact Wienerworld on 0181 954 8777.

MACFORMAT RATING 85%



Here's the lead singer, what's-his-name, telling us the story behind The Calling, one of the album tracks.

Yes Active

Yes are yet another 'super group' to make a CD-ROM version of their latest album for adoring fans. But do you get anything more than just the songs? Yes, sort of.

If you prefer listening to Prince (or squiggle, or whatever he's called now), Yes are quite a famous and, frankly, old contemporary rock group. Although the members' waistlines may indicate the group's age, clearly technology has not passed them by, since *Yes Active* is a CD-ROM version of the latest album. So what do you get for your money?

There are five main sections to explore. 'Profiles' is just that – a photo of the band member coupled with their personal details, such as date of birth, number of children and so on. 'History' gives you a discography of the band, a list of all their albums and songs, and a rather group-sympathetic chronicle of the group's existence. 'Music Workshop' is a strange area. To get further insight into the makings of a super group, you can watch the band playing their instruments. When you bring up an instrument, certain parts of it can be highlighted such as the guitar neck or the keys on the keyboard. Clicking on these accesses different information, usually involving the band members talking to you in a QuickTime movie. The most popular section will no doubt be 'Inside Look', where you can listen to the album. You get seven tracks – the whole album (they're long though – oh, so long). You can read the lyrics as the song plays but they don't highlight in a karaoke manner (shame). Clicking on 'Story' accesses a band member telling you the ideas behind the song. Deep, man! The final section is 'Jukebox', which enables you to hear the album with a click of the mouse.

User-friendly?

Trying to be more than just an audio CD on a computer, the CD-ROM gives you extra information, such as an early demo version of one of the songs, the instrumental versions of two, and live videos of two others. Actually, the live videos work quite well – the flaws of QuickTime's sluggish frame update create a rather rock-vid feel, the picture atmospherically dragging along instead of flowing.

At first, the user interface seems very easy. There's little on the screen to detract from the icons, making it clear where you need to click. Often there's no beep to acknowledge your selection, so users of slower Macs may wonder what's happening as the images are loaded off the disc.

Most of the graphics are simply scanned or digitised shots of the group and instruments. The lack of effort blending the QuickTime movies into the surrounding image is annoying. A rectangle is plonked straight on the screen, bluntly contrasting with the subtle blends behind.

That is not all – the disc's reliability is questionable. On a PowerMac it crashed on quitting, and on a Performa 630 the sound didn't work (rather important really). We tried all the usual steps to solve the problem, but alas! It still didn't work.

If you are a Yes fan, the CD-ROM will provide the album material with extra information too, the sort of things you could discover in one of MTV's rockumentaries. You also get two album tracks in audio CD version, in case you can't be without Yes when jogging with your CD Walkman, for example. But you don't get to hear any famous, older tracks, which is a shame. *Yes Active* is clearly packaged as the new album with perks – don't expect any more. For 25 quid, only real fans should say 'yes' (groan!), but then they'd probably buy the video version of the album, as well.

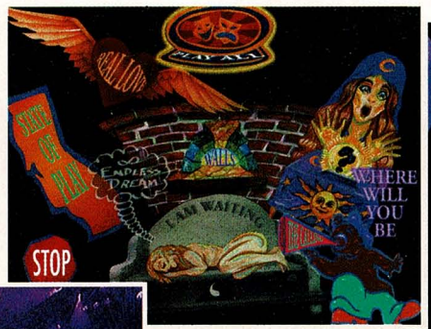
NICK HARPER

SOME YES HISTORY

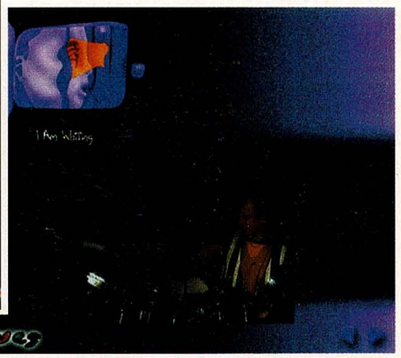
In 1980, The Buggles (Trevor Horn and Geoff Downes) joined Yes – maybe they thought the name was cooler. In 1981, Yes split up, with Steve Howe and Geoff Downes leaving to form Asia. But Yes have soldiered on alongside dinosaurs like Pink Floyd, Genesis and a few others that don't spring to mind right now.

BIRTH DATE OCTOBER 25, 1944
BIRTH PLACE ACCRINGTON, ENGLAND
MARRIED NO
CHILDREN 2 GIRLS, 1 BOY
EYE COLOR BLUE
HAIR COLOR BROWN
YEARS IN YES 27
INSTRUMENT VOCALS
OTHER BANDS THE ELECTRIC WARRIORS
HOBBIES PAINTING, WINDSURFING AND BEING IN LOVE ALL THE TIME
Jon Anderson

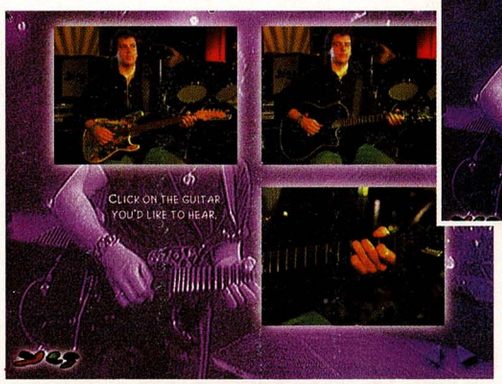
The Profile screen provides a quality photograph but limited information. Maybe they're a private bunch?



The Jukebox screen. Click on any of the seven song titles to hear your fave tune of the moment.



Two tracks have a live video version, so you can watch the band escape from their troubles on stage.



In the Music Workshop you can watch band members with their individual instruments.

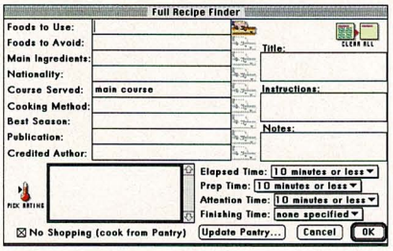
YES ACTIVE

Price: £24.99. Out: now.
Requires: LC or better with System 7, 8Mb RAM, 256 colours and a double-speed CD-ROM drive.
For more details contact Active on 0181 838 1280.

MACFORMAT RATING 63%

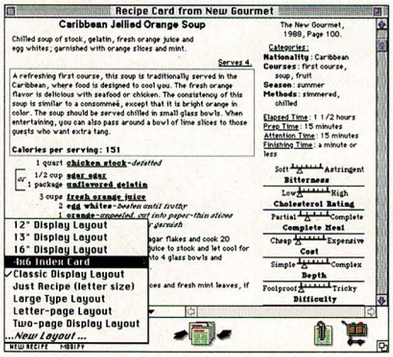
Mangia!

The ultimate in culinary inspiration is here. More than just a cookbook, *Mangia!* does almost everything for you. Okay, you have to buy the food and cook it, but you don't have to think!



By keeping the contents of your pantry up to date you're able to achieve the ultimate – ask *Mangia!* to produce a recipe from what you have available. Unfortunetely four cans of Heineken Export doesn't crop up too often in the thousands of meals on offer.

This series of cooking recipes on floppy disk filled me with great enthusiasm. I approached it thinking, 'Here's the answer to one of life's great imponderables: "What on earth should we have for dinner?"' Four hours later I wished I'd never taken *Mangia!* out of the shrink-wrap, because that's how long it took me to resurrect my crashed hard disk and the essential files it contained. While *Mangia!* is now successfully installed and has proved stable enough, the initial problems I encountered weren't entirely my own fault.



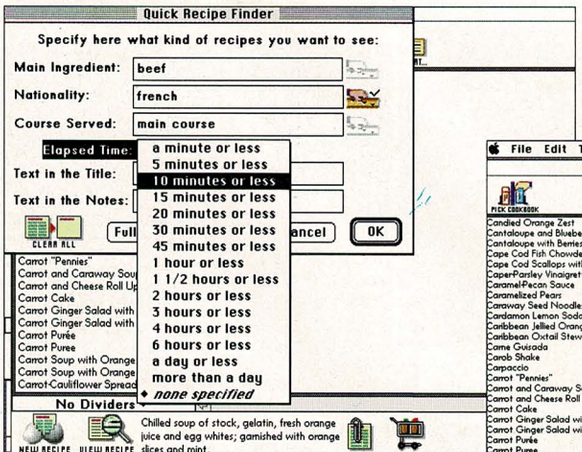
Once you've selected a recipe, you have a choice in how you want it displayed. You can display just the instructions or just the ingredients – and you can choose from seven other criteria.

Mangia! is a database engine on CD-ROM into which you can load any number of data files, each containing hundreds of different recipes. Disks with collections of meals grouped under headings like The New Gourmet, Fifteen-Minute Meals, One-Pot Meals, Good Cheap Food and Eat Smart for a Healthy Heart, can all be imported into the main application so you can treat the data to a variety of search criteria. The problem lies in the amount of time it takes to merge these data files. In a nutshell, it takes an eternity the first time you merge them all – so much so, that you think your Mac has crashed. If you quit while under this impression, you'll restart to find that, yes, the whole hard disk's crashed!

So that little bugbear aside, does *Mangia!* have any saving graces? Well, yes, it has quite a few actually, and to say it's brilliant would be an understatement. What's particularly good about the application is that you can search through the hundreds of recipes using a number of criteria. First of all, you can choose simple search routines, like finding all the recipes which include the words 'chicken' and 'grilled'. Then you can narrow down your search by specifying whether you're after a starter, main course or sweet and the amount of time you're willing to spend preparing and cooking the dish. And when you get really sophisticated you can achieve the ultimate – namely asking *Mangia!* to come up with recipes based on only the ingredients you happen to have in the house. Of course, to achieve this you have to keep an up-to-date log of what food you have in your kitchen in *Mangia!*, but the other advantage of this is that the ingredients of any recipes you like the sound of can be effortlessly added to a shopping list which can then be printed out. What's also smart is that these shopping lists are automatically recalculated according to how many people you wish to cook for.

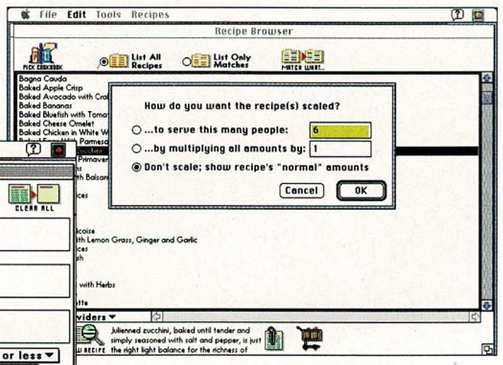
Add to this the facilities to organise a whole week's or longer meal plan, to add your own recipes and create custom favourites, and there's everything here except something which actually does the dishes. There's even a means of printing menu cards. And yes, it's also probably the most advanced *HyperCard* stack I've seen. So just be patient while installing *Mangia!* and from then onwards you'll never regret it.

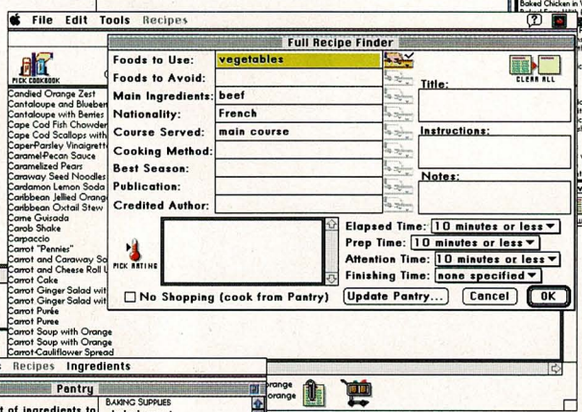
ANDY STORER

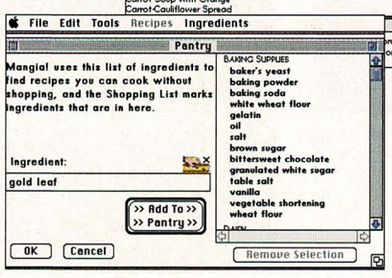


But here's where the real fun starts. You can click on the Match icon to call up a quick search routine which will locate all the recipes satisfying the search criteria.

If guests are coming to dinner, you can easily modify the amounts involved and produce a recipe and shopping list which takes the extra mouths into account.


Recipe Browser
How do you want the recipe(s) scaled?
...to serve this many people: 6
...by multiplying all amounts by: 1
Don't scale; show recipe's "normal" amounts
Cancel
OK





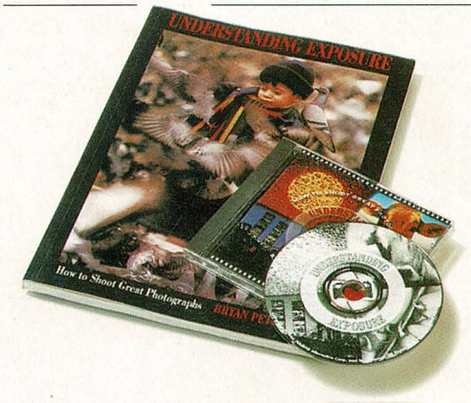
But if you're clever *and* organised – a rare combination in the kitchen – you can use *Mangia!* to keep track of your larder contents. From then on it's a simple job to automatically produce shopping lists when needed.

And when you call up the full finder, you're given a bewildering range of choices with which to frame your particular search.

MANGIA!

Price: $49.95 + $5 shipping. Out: now.
Requires: any Mac with 1Mb of RAM and System 6.05 or later.
For more details contact Upstill Software in the US on 00 1 510 526 0178.

MACFORMAT RATING 90%



Understanding Exposure

If you long to be a photographic genius but don't know how to use your camera, three vital aspects of photography are explained here: shutter speed, film speed and aperture.

With an accompanying 150 page glossy coffee table book of the same name, *Understanding Exposure* is an interactive guide to shooting great photographs. Of course, multimedia's the ideal medium for this kind of tutorial application, since it can provide a virtual photographic lab where you can instantly see the effects various camera settings have on a range of different images. Indeed, this is the main purpose of *Understanding Exposure*, which concentrates exclusively on the interdependencies of aperture, shutter speed and film speed to improve your own photography.

Unfortunately, there's no opportunity to learn how to frame shots or choose an appropriate lens for a subject at hand, and there's no handy hook-up to your own *PhotoCD* images so you can use them as pliable examples to manipulate either. So what we're talking about here is just a comprehensive manual of photography.

But with 70 topics on offer – all offshoots of the main aperture, shutter speed and film speed threads – there's enough to be going on with. The main section, PhotoLab, has more than 100 exposure and film combinations for you to experiment with. Simply by clicking on aperture setting and shutter speed combination, you can call up the results of your choice immediately on the image on screen. This is fine as far as it goes, but I feel *Understanding Exposure*'s authors have missed a trick here. A far better approach would be to emulate the process of actually taking a photograph.

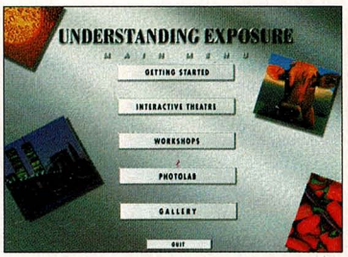
In an ideal world...

The program could provide random lighting conditions, overlays for filter and lens types and enable the virtual photographer to frame and take a shot from a bank of supplied images. Then the results could be consigned to a roll of work-in-progress photos which could be reviewed at the end of your session. But the emphasis here is firmly on the interrelation of the three – albeit perhaps the most important – elements of photographic production as they affect supplied images. This is a shame, because you cannot deny this package has been professionally produced with a lot of insight into and knowledge of photography. It's just that it could've been much better with only a little extra work.

Still, there's another 500 pro photographs with shot specifications and voice-over annotations by their creators and sections on special techniques and lighting effects, so there's plenty to commend the package. The accompanying book's good too, with clear details provided on the subjects covered.

But the overriding impression is that if there is a state of the art interactive tutorial package on photography, this isn't it – although it does come pretty close. We can only assume that it's the first in a series and as such we will be tempted to purchase all the different modules.

ANDY STORER



While *Understanding Exposure* attempts to make clear the complexities of how shutter speed, aperture settings and film speed interact, thankfully its means of presentation is clear and straightforward – no need for a manual here.

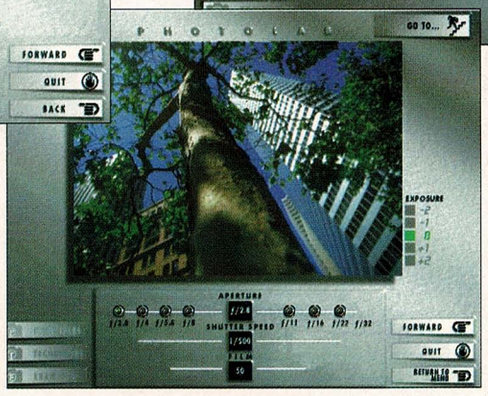
Click on the introduction and you get an overview of the subject at hand. Throughout the proceedings you receive a mixture of written and spoken annotations.

GO TO...
PHOTOGRAPHIC TRIANGLE
The right film speed allows for aperture and shutter speed combinations that provide a multitude of creative effects.
FORWARD
QUIT
BACK

The production is full of good quality images, plus notes and commentary on how they were taken and the settings used. You can also browse the gallery of 500 photos and see what settings were used for each.

GO TO...
HIGH-CONTRAST CONDITIONS
High-contrast scenes pose the most common exposure problem for photographers, amateur and professional alike. Photographers are often disappointed with their high-contrast photographs – especially when compared with the memory of what they actually saw.
The reason is simple: the human eye's ability to see and sense light differs considerably from an exposure meter's ability to do the same.
PRINCIPLES
FORWARD
QUIT
RETURN TO MENU

While this section starts off being nothing more than a gallery of a variety of images with captions, it soon begins to kick into gear.



Here you can begin to experiment on an image to see how different settings for aperture affect the resulting colouration, definition and exposure.

UNDERSTANDING EXPOSURE

Price: £41.07 + £5 delivery. Out: now.
Requires: a Mac II or better with 4Mb of RAM, colour monitor, System 7 or later and a CD drive.
For more details contact Mac Zone on 01483 211456.

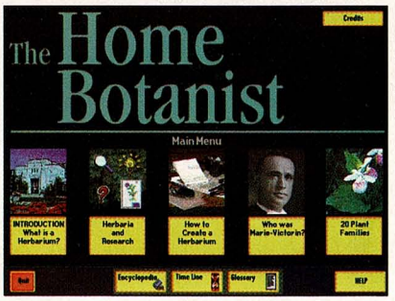
MACFORMAT RATING 84%

A LIGHT ISSUE

Bryan Peterson, the author, suggests that as overcast light is soft, giving little contrast, it's one of the easiest conditions for light exposure. And as you needn't worry about shadows ruining the composition, it's good for photographing flowers, people and forests.

The Home Botanist

Everything you never wanted to know about gardening in Quebec is now within easy reach! You didn't? Well there's also a botanic encyclopedia, glossary and advice on offer.



The Home Botanist's rather uninspiring opening screen hides a mass of in-depth data on all aspects of botany.

OTHER TITLES

EMME Interactive also cover non-Canadian oriented subjects. In fact they publish almost everything from *The Sistine Chapel* to *You and your Baby* to *Space Encyclopedia* to *Pastries*. And there are even more titles to be released soon!

Indoor gardening could have taken on a whole new meaning with *The Home Botanist* – I imagined it would provide some kind of virtual garden you could tend between spreadsheet sessions and call up as a screensaver to see how it's growing. But no. Sadly not. Instead this dry little gem just has to be one of the most esoteric multimedia titles I've ever come across since the term 'virtual conservatory' – which is perhaps the most accurate description of what *The Home Botanist* is attempting to achieve.

The fact that the information here is culled from the Marie-Victoria Herbarium in Quebec makes it a little way-out too, since there's a great deal here targeted at east central Canadians with green fingers. But perhaps the most esoteric aspect of the title is that it's pitched at a scientific, academic audience.

Or at least that's the impression you get from screen after screen of in-depth botanical detail covering the entire history of research in the field. While this might appear to warrant some interest, the fact that the timeline is firmly centred on historical events as seen from Quebec does rather tend to undermine its usefulness. Nor are the detailed extracts from the extensive history of academic arguments surrounding botany's competing scientific methodologies going to make this a title to kill for. In other words, this CD-ROM is firmly pitched at the many among us who live in those ivory towers with conservatories.

Moving swiftly on, you try to find out what a herbarium actually is and are treated to this dreadful QuickTime movie with voice-over.

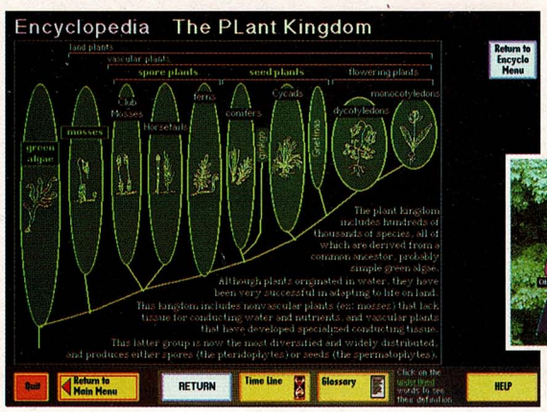
Not just academic

It's not all quite as arid as that though – there's also a complete encyclopedia of different plants, transcripts of the work of famous botanists and a seemingly never-ending glossary. In short, *The Home Botanist* has everything you might need in a thorough guide to studying for a degree in botany.

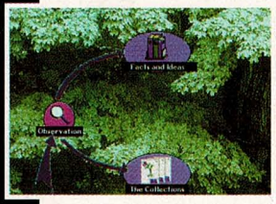
Curiously then, there's also a special video section that teaches you how to appreciate and preserve your favourite flowers. This is full of practical advice in the form of voice-overs accompanying QuickTime clips and would make an ideal standalone title if it had been extended further. It's just that the academic and populist treatments don't sit together comfortably. The former's too dry and arcane for mass appeal, while the latter's just not comprehensive enough.

The Home Botanist has been put together well enough in that it's easy to navigate your way around its mass of contents and the quality of the hundreds of colour photos and illustrations is first-class. But this is seriously niche stuff. So there's no other way of summing up *The Home Botanist* other than by baldly stating that if you're into botany then buy it! It's that specialised.

ANDY STORER

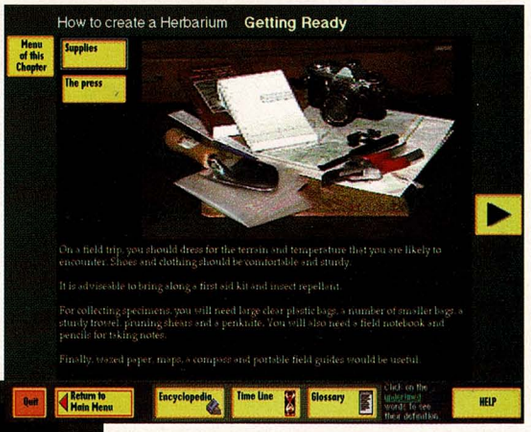


Thankfully it gets better though. In the encyclopaedia section you can begin to get down to the nitty gritty of all things floral.



It gets worse. Take the Botanica Research area – they've got good intentions, I'm sure, but this is far too rarefied for mass appeal.

There's even advice on how to create your own herbarium, but unfortunately there's little here to tempt you to do so.



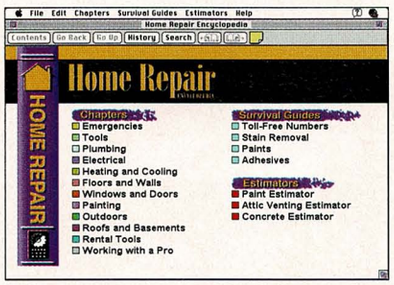
Browsing the Plant Famillies section also reveals some more interesting screens of information – but note the references to Quebec beginning to creep in.

And as if no further proof were needed that this title is utterly compulsive, here you're treated to the life history of an apparently famous Canadian botanist.

THE HOME BOTANIST

Price: £34.99. Out: now.
Requires: Mac LCIII or better with 4Mb of RAM, colour monitor, System 7 or later and a CD drive.
For more details contact EMME Interactive UK on 01923 240050.

MACFORMAT RATING 69%



From *Home Repair's* opening screen of main subject areas, more than 50 home projects are accessible.

Home Repair Encyclopaedia

For all would-be DIY experts, the veil of ignorance is about to be lifted! It may sound tedious, but this multimedia title is perfect if you need to find out how your house functions.

Let's just sum up *Home Repair Encyclopaedia* straight away, shall we? It's brilliant, buy it! Why can I recommend it so immediately without reservation? Well it sorted out my whining pipes, mate. Sorry to digress, but ever since installing central heating last winter, I've been plagued by my plumbing. So, load up *Home Repair*, click on plumbing, click on whining pipes and, hey presto, there's full documentation on what the problem is, how to cure it, what tools are needed, how best to use them, what to be careful about and how a pro plumber would go about it. All in a flash with diagrams to boot and the facility to print the whole lot out. I was straight under the kitchen sink and only half an hour later the plumbing was sorted.

That little example alone may have convinced you that *Home Repair Encyclopaedia* will pay for itself by the time you've completed your first do-it-yourself job, but the fact that I also cracked two other almost historic annoyances on the very same day is further proof, if you need it. In short, this program gives you the confidence to save yourself money and it does it in style.

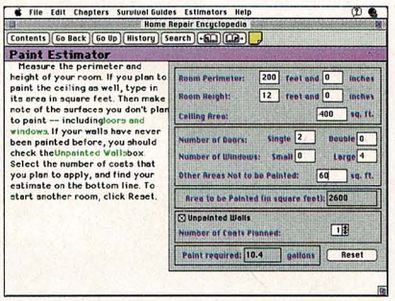
There's information here on more than 50 home projects offering expert advice, helpful hints, reference guides, animations, diagrams and even cross-linked explanations on how your home works. Choosing from one of the main headings, you simply click into a sub-topic and read up on how to use that wallpaper steamer, tape drywall seams, stop a water leak or grout ceramic tiles – you know, all those lovely things you've been putting off every Sunday since time immemorial.

But *Home Repair Encyclopaedia* goes beyond being a mere series of multimedia tutorials in so far as it also includes several Survival Guides and Estimators. The Survival Guides include advice on what to do in emergencies – like how best to remove the stains from your lounge carpet after you've just merrily poured sump oil all over it, or what kind of glue you should use to repair that fine porcelain figurine you inadvertently head-butted. And, mercifully, there's full details on how to remove wine stains from just about every material known to mankind. The Estimators are also particularly useful, since they enable you to quickly work out how much paint you'll need for a particular room, or how much cement you'll need for a foundation, or the amount of lagging you should get for the loft.

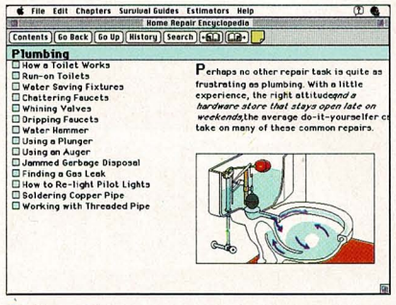
There are a couple of minor gripes though: the program includes toll free telephone numbers for the best sources of supplies, equipment and contractors in the US. Handy if for some strange reason you want to ship the lot 3,000 miles. And all the paint sections deal in gallons rather than litres. But the inclusion of a handy section on when and how to get expert help, and advice on how to use contractors effectively, more than makes up for these minor blips in the package.

So *Home Repair Encyclopaedia* is well worth checking out and comes thoroughly recommended.

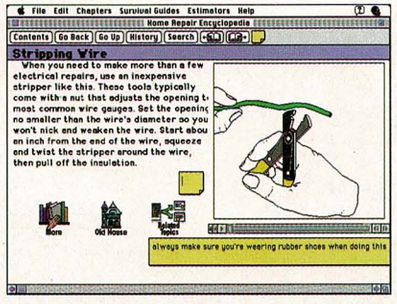
ANDY STORER


File Edit Chapters Survival Guides Estimators Help
Home Repair Encyclopaedia
Contents Go Back Go Up History Search
Paint Estimator
Measure the perimeter and height of your room. If you plan to paint the ceiling as well, type in its area in square feet. Then make note of the surfaces you don't plan to paint — including doors and windows. If your walls have never been painted before, you should check the Unpainted Walls box. Select the number of coats that you plan to apply, and find your estimate on the bottom line. To start another room, click Reset.
Room Perimeter: 200 feet and 0 inches
Room Height: 12 feet and 0 inches
Ceiling Area: 400 sq. ft.
Number of Doors: Single 2 Double 0
Number of Windows: Small 0 Large 4
Other Areas Not to be Painted: 60 sq. ft.
Area to be Painted (in square feet): 2600
Unpainted Walls
Number of Coats Planned: 1
Paint required: 10.4 gallons
Reset

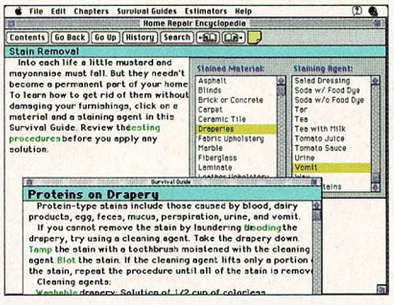
Useful additions like this Paint Estimator provide a quick ready reckoner – there's also estimators for concrete and loft insulation.


File Edit Chapters Survival Guides Estimators Help
Home Repair Encyclopaedia
Contents Go Back Go Up History Search
Plumbing
How a Toilet Works
Run-on Toilets
Water Saving Fixtures
Chattering Faucets
Whining Valves
Dripping Faucets
Water Hammer
Using a Plunger
Using an Auger
Jammed Garbage Disposal
Finding a Gas Leak
How to Re-light Pilot Lights
Soldering Copper Pipe
Working with Threaded Pipe
Perhaps no other repair task is quite as frustrating as plumbing. With a little experience, the right attitude and a hardware store that stays open late on weekends, the average do-it-yourselfer can take on many of these common repairs.

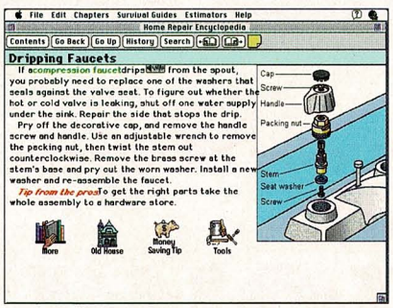
Clicking on the Plumbing section calls up a choice of 14 different problems you may want help and advice on.


File Edit Chapters Survival Guides Estimators Help
Home Repair Encyclopaedia
Contents Go Back Go Up History Search
Stripping Wire
When you need to make more than a few electrical repairs, use an inexpensive stripper like this. These tools typically come with a nut that adjusts the opening to most common wire gauges. Set the opening no smaller than the wire's diameter so you won't nick and weaken the wire. Start about an inch from the end of the wire, squeeze and twist the stripper around the wire, then pull off the insulation.
More
Old House
Safety Notes
always make sure you're wearing rubber shoes when doing this

You can also attach your own notes to the pages for subsequent print outs – usefully, these remain in position between sessions and can be added to.


File Edit Chapters Survival Guides Estimators Help
Home Repair Encyclopaedia
Contents Go Back Go Up History Search
Stain Removal
Into each life a little mustard and mayonnaise must fall. But they needn't become a permanent part of your home. To learn how to get rid of them without damaging your furnishings, click on a material and a staining agent in this Survival Guide. Review the testing procedures before you apply any solution.
Stained Material:
Asphalt
Blinds
Brick or Concrete
Carpet
Ceramic Tile
Draperies
Fabric Upholstery
Marble
Fiberglass
Laminate
Staining Agent:
Salad Dressing
Soda w/ Food Dye
Soda w/o Food Dye
Tar
Tea
Tea with Milk
Tomato Juice
Tomato Sauce
Urine
Vomit
Proteins on Drapery
Protein-type stains include those caused by blood, dairy products, egg, feces, mucus, perspiration, urine, and vomit.
If you cannot remove the stain by laundering, treating the drapery, try using a cleaning agent. Take the drapery down. Tamp the stain with a toothbrush moistened with the cleaning agent. Blot the stain. If the cleaning agent lifts only a portion of the stain, repeat the procedure until all of the stain is removed.
Cleaning agents:

There's also some handy survival advice about what to do in emergencies, like this guide to stains.


File Edit Chapters Survival Guides Estimators Help
Home Repair Encyclopaedia
Contents Go Back Go Up History Search
Dripping Faucets
If a compression faucet drips from the spout, you probably need to replace one of the washers that seals against the valve seat. To figure out whether the hot or cold valve is leaking, shut off one water supply under the sink. Repair the side that stops the drip.
Pry off the decorative cap, and remove the handle screw and handle. Use an adjustable wrench to remove the packing nut, then twist the stem out counterclockwise. Remove the brass screw at the stem's base and pry out the worn washer. Install a new washer and re-assemble the faucet.
Tip from the pros: To get the right parts take the whole assembly to a hardware store.
Cap
Screw
Handle
Packing nut
Stem
Seat washer
Screw
More
Old House
Money Saving Tip
Tools

All of the individual entries have handy tips and references to related topics and terms, while 49 of them have accompanying animations.

HOME REPAIR ENCYCLOPAEDIA

Price: $29.95 + shipping. Out: now.
Requires: Mac LCII or better, System 7 or later, 4Mb of RAM, CD drive (double speed recommended), QuickTime 1.6.1 or higher.
For more details contact Books That Work in the US on 00 1 415 326 4280.

MACFORMAT RATING 92%

LEAKY ROOF?

Home Repair advises you to flood the roof with a hosepipe while someone stands in the attic with buckets and flashlight so they can catch the water as it comes through and locate the hole. Then bang a nail through the exact spot where the hole is so that you can find it again to fix it. Personally, I'd get some other sucker to do it for me!

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FUTURE MUSIC

Dual-format disc with over 70 minutes of audio and software.

OUT NOW!

Welcome to *Visual Arranger*. You can access the demo song and several windows from here. Notice the plug for Yamaha's Hello! Music! system in the graffiti!

Visual Arranger

You don't have to spend years studying music composition in order to make music. All you need is a Mac, a mouse and *Visual Arranger*. Ian Waugh discovers just how easy it is.

The nice thing about the Mac is that it makes so many things easier. Music is one of them, although most music applications such as sequencers do require a degree of musical knowledge and ability.

Not so with *Visual Arranger*. Using little more than the mouse, you can construct musical accompaniments complete with phrases and even melodies. No musical skills are required at all.

Other than the program itself, you need a General MIDI sound module or a keyboard with a General MIDI mode and a MIDI interface. Once the program's installed, connect the sound module to the MIDI interface and off you go. The only setting up required is to select one of four GM settings. There's no messing about with MIDI channels or program numbers.

Icon see clearly

The program is icon-based and very easy to use. For the first step select a musical style. There are eight Style Groups ranging from Dance and Rock to Jazz and Latin, and each of these contains 20 Styles. Each Style contains eight patterns such as Intro, Main, Fill In and Ending. That's a total of 1,280 patterns.

There are 40 additional 'Style Disk' patterns which can be loaded into a special Disk Group and there's a Favourite Group where you can stash Styles for quick access. Each Style uses up to six instruments and a rhythm section, so they're quite complex.

You listen to a Style by clicking on it. When you've found one you like, drag it into the window's main area. Select another Style and drag that into the window too, and you'll see it link to the first. The links show the order the patterns will play in.

Puttin' on the style

Using Style types such as Intro, Main and Fill In, you can quickly build up a complete backing track. You can change the positions of the Styles in the chain, and remove them at any time. You also have the option of mixing Styles from the different Style Groups too, to create individual arrangements.

But music is not just about rhythm, it's about harmony too, so you need to create a chord progression for the accompaniment. This does not have to be complicated. Virtually every Rock 'n' Roll song, for example, contains only three chords, and thousands of perfectly acceptable songs have been written using a dozen chords or less.

Each Style icon has its own chord progression window. You can freely add and remove chords, making each pattern as long or as short as you wish.

You may think that some musical ability is required in order to know which chords to choose and that's certainly true. However, the Chord Window includes several preset chord patterns, which are ideal if you're a beginner. Just drag the

Continued on next page

DID YOU KNOW...?

Lalo Schifrin, composer of the *Mission Impossible* theme, is one of the fastest arrangers in the world. He is often called upon by filmmakers and theatrical producers if a piece of music needs arranging in a hurry.

JARGON BUSTERS

Chord: a combination of three or more notes.

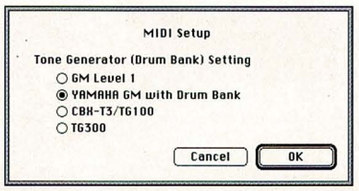
Chord progression: a sequence of several chords which form the essential harmony of a song.

General MIDI: an agreed standard for synthesiser voices which is based on 128 sounds. A MIDI file configured to General MIDI will sound more or less the same when played on any GM module.

Pan position: the place at which a sound appears in the stereo image. It can be left, right, centre or any point in between.

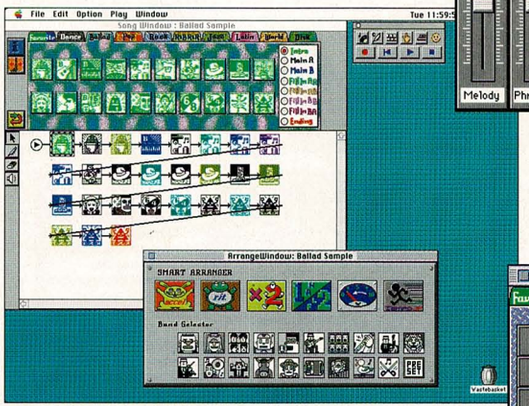
Reverb: technically, a complex combination of echoes which creates a feeling of space or depth. Reverb can considerably enhance sounds by making them less 'dry' and more 'warm'.

Standard MIDI File: an agreed file format which allows a MIDI file to be loaded into any sequencer which supports SMFs – and that's most of them.

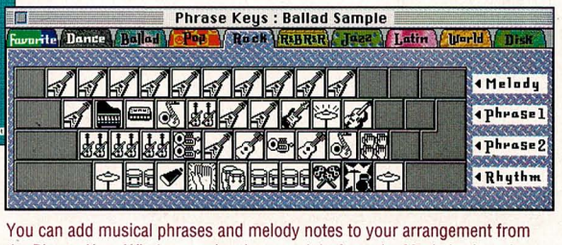


There are four MIDI setup options – and that's all the setting up you have to do!

With the Mixer you can change the instruments' sounds, balance their volumes, and record fades, phrases and melody notes.



The Song Window is *Visual Arranger*'s main window, where Styles are linked together to form a backing track. You can alter the instruments and tweak the tempos in the lower Arrange Window.



You can add musical phrases and melody notes to your arrangement from the Phrase Keys Window or play them straight from the Mac's keyboard.

ARRANGERS

There are several computer-based arranger programs on the market, and although they're relatively new, the concept isn't. Home keyboards have had sophisticated auto accompaniment features for years and electronic organs have had them for even longer!

Initially, the idea of an instrument which played an accompaniment for you was dismissed by the musical intelligentsia. Now, however, the idea is widely accepted and many pro-level synthesisers include auto features.

This change in attitude may have been due to the increase in sophistication of the accompaniments and the improved sound quality and range electronic instruments can produce. Even the relatively humble General MIDI module can sound like a full band.

GET REAL!

The accompaniments in portable keyboards are actually programmed using computer-based sequencers. Many are far too complex to play in real-time.

TAKING A GAMBLE

Mozart experimented with 'computer-based' composition and developed a system of creating minuets by throwing dice.

chord pattern of your choice into the list. And there you are – an instant song!

The lost chord

If you know your major sevenths from your minor ninths, you can create your own chord progressions and, here again, *Visual Arranger* makes it very easy. First, you choose the key you want to work in and the main selection area shows you the most popular chords used in that key.

When a chord's been placed, clicking on it produces a flip menu letting you select any key and any one of 30 chord types. Some are very complex indeed – jazzers will love 'em – but you can listen to a chord or chord progression at any time by clicking on it, so you can test the chords by ear before using them.

Phrase maker

Once the accompaniment is complete, the next step is to add some musical phrases and a melody line, which you do from the Phrase Keys Window. You can trigger musical phrases by pressing the keys on the Mac's keyboard or by clicking on the icons in the Phrase Window. The interesting thing is that they're constructed so that they'll always harmonise with the current accompaniment. That means when the chord changes, the phrases change too, so you don't have to worry about playing in key. Clever, eh?

Various aspects of your composition can be altered in the Arrangement Window. You can change the tempo, speed it up, slow it down and fade it out. There are 20 Band Select buttons which call up different sets of accompaniment instruments. For example, the first Ballad Intro Style uses Piano, Guitar and String sounds. The Band buttons can change these to rock-oriented distorted guitars and organ or to more ethereal synth pads.

Mixing it

The final Window is the Mixer. Each instrument has its own mixer channel where you can adjust its volume and pan position and set a reverb level. You can also change the sound of any of the parts – when you click on an instrument name, a pop-up menu guides you through the 128 General MIDI sounds.

Here you can also record a melody line into the song from an attached MIDI keyboard. The Mixer can also record fader movements for adjusting the volumes in real-time – and you get to see the faders move during playback!.

Although you don't really need any musical ability to use *Visual Arranger*, musicians could use it to create backing tracks for songs. The arrangements it creates can be saved as Standard MIDI Files for loading into a fully-fledged sequencer for polishing and tweaking.

Filing system

The various patterns used by each of the Styles are held on disk and only loaded when required. The files are in a special format which won't readily load into a sequencer (although if you're a hacker, you can change the file type to MIDI and import it as a Standard MIDI File). The manual contains no information about creating your own styles, but then, the program isn't really aimed at users who are likely to want to do that sort of thing.

Although the program is easy to use, you will have to read the manual to absorb the basic operational functions. It's very graphic and easy to follow but for more detailed information you have to use the Online Help which is in the form of a *HyperCard* stack. Unfortunately it's not half as convenient as a manual.

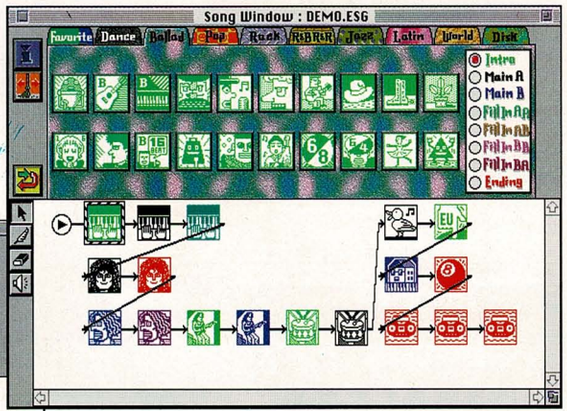
But with a few mouse clicks you can create very impressive accompaniments. The phrases and melodies may not be so spectacular, but then they don't allow you to make a mistake – and you know what they say about people who never make a mistake...

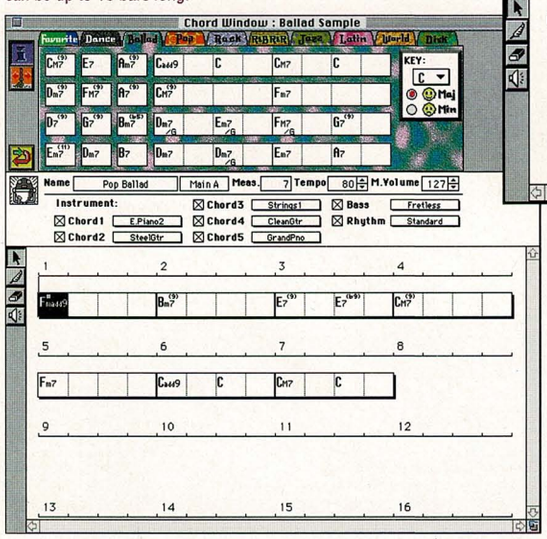
If you want to create a lot of music for relatively little input, *Visual Arranger* is for you. If you do gigs and need backing tracks for songs, it's worth looking at too, but the Styles, of course, can't cater for every type of song. If you write songs and lack arranging skills, it will enable you to put a backing down quickly and easily.

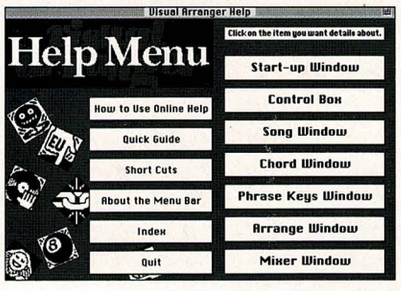
Visual Arranger will be of interest to users who have a wide range of musical abilities and requirements, but whatever your skills or requirements, it's fun! **MF**

In the Song Window, Style icons are linked together showing the order in which they play.

Each entry in the Song Window has its own chord progression, so each Style can be up to 16 bars long.







Visual Arranger has excellent Online Help in the form of a HyperCard stack.

VISUAL ARRANGER

Price: £39. Out: now.
Requires: Mac II or better (not the Classic), System 7.1 or later, 8Mb free RAM, 8Mb hard disk space, General MIDI sound module.
For more details contact Yamaha-Kemble on 01908 366700.

FEATURES 85%
Lots of excellent, clever features built-in, but not many customisable options.

EASE OF USE 94%
The best click and play arranger program yet!

DOCUMENTATION 86%
A reasonable, well-illustrated manual with lots of nice pictures, but it relies a bit too much on Online Help for dealing with the nitty gritty.

VALUE FOR MONEY 95%
Lots of fun and cheaper than most games.

MACFORMAT RATING 90%

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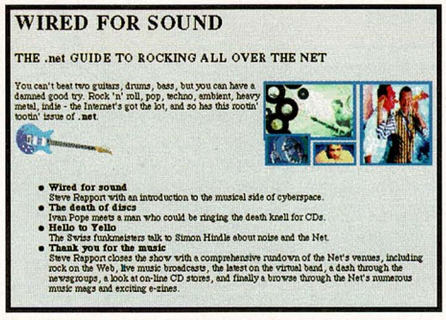
WIRED FOR SOUND
THE .net GUIDE TO ROCKING ALL OVER THE NET
You can't beat two guitars, drums, bass, but you can have a damned good try. Rock 'n' roll, pop, techno, ambient, heavy metal, indie - the Internet's got the lot, and so has this rootin' tootin' issue of .net.
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• Thank you for the music
Steve Rapport closes the show with a comprehensive rundown of the Net's venues, including rock on the Web, live music broadcasts, the latest on the virtual band, a dash through the newsgroups, a look at on-line CD stores, and finally a browse through the Net's numerous music mags and exciting e-zines.

You'll find the latest information on new issues and forthcoming special offers.

Don't Panic
Those stupid little problems that have been annoying you, the ones you can't find any answers for in the DOS or Windows manuals, will annoy no more. Ed Ricketts and Paul Pettengale are the smartarses with all the answers. Photography : Ashton James
We are your friends, we like to help you out, and we enjoy telling you what to do. At which point we'd like to add that it's also our job, and we've all got mortgages to pay for, so when we're told, "Give our readers at least 100 top tips on how to get the most out of their PCs, informing them how to make their PC-using lives easier, and giving them the lowdown on the essential software they should get", we jump. And after we've done that we get down to it.
We know these PC things can be a pain where it hurts from time to time - things go wrong, you get confused, you cock everything up. Hey, we've all done it (though Ed never admits to it), but in most cases, if you have your PC set up well in the first place, or if you follow a series of simple precautionary procedures once a month or so, you can rest assured that things will never, ever go wrong. Well, not frequently at any rate. So let us tell you what to do, tip by tip, to make sure that your PC life is a happy one.

Articles from back issues are available free to search and browse.

To advertise on FutureNet, email **Simon Richardson** at srichardson@futurenet.co.uk or call 01225 442244.

SHAREWARE AND PD

This month Derek Smith and Nick Harper trawl the murky waters of the Internet and sift the software plankton that is shareware, to find those tasty morsels that satisfy.

Once more I have enlisted the help of Nick Harper in compiling this shareware section. However, I kept him away from any sexually suspect programs, and reviewed those myself. Well, he's young and impressionable, it's my duty...

Koji the Frog 1.0.1

ARCADE GAME

Shareware $15

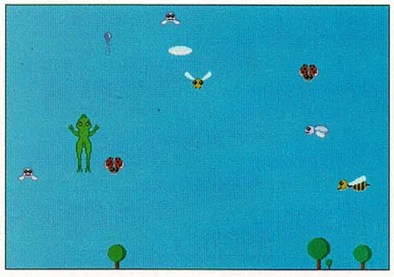
I don't know why frogs are so popular. In an attempt to prove that I'm game for anything, I ate some frogs' legs once. Boy, do those creatures wriggle. Anyway, in this game you play Koji, a frog with an insatiable appetite for anything that moves. Using the keyboard, you jump about the screen and use your long, sticky tongue to lap up ladybirds, wasps, flies and their elk. Sorry, that should be ilk.

All the shareware featured here is on our covermounted CD-ROM

If you're lucky a magic butterfly will unsuspectingly let himself be scoffed, giving you super powers (such as a longer tongue – always useful in this day and age). To stop you during your revitalising feed there are a variety of lethal natural enemies. A snake slithers across the screen and gobbles you up, or a car zooms across and runs you over. A third enemy is slightly less natural. Stand still too long and a gopher comes along and dynamite blasts you, complete with a high-pitched snigger. Classic entertainment!

The graphics owe a lot to the old Nintendo style – bright, cleanly drawn characters but not quite your 256 colour, fully-rendered masterpieces of today. But *Koji the Frog* does come up trumps in gameplay. There's something remarkably satisfying about eating that last fly on the screen. Yummy!

The only down side was an occasional error message telling me that it couldn't find the required sprites. Curious, as it found them last time. Oh well, c'est la shareware.



If you put a frog like Koji in boiling water, he jumps out. Put him in cold water and bring it slowly to the boil, he stays put and dies. Interesting that. Mind you, they're a bugger to scrape off the bottom of the pan.

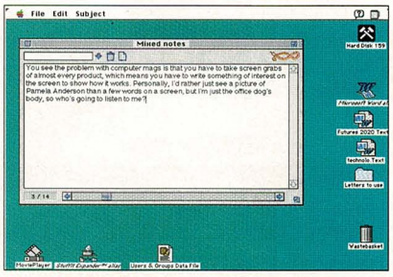
NotePad Deluxe 1.1

UTILITY

Shareware $5

Do you use *Note Pad*? It's the utility that comes free with the System software and enables you to jot down notes. No, of course you don't, nobody does. It's about as useful as the Map Control Panel.

NotePad Deluxe is a replacement for it. Remove *Note Pad* from the Apple Menu Items folder (unless you've sensibly already trashed it), and swap it for this one.

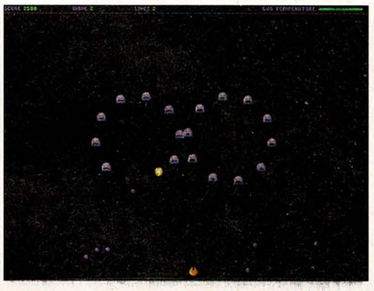


Using *NotePad Deluxe* you may never have to remember anything again. Well, apart from where on your hard disk the program is. And what time *Baywatch* is on, so you don't forget to set your video...

For just five dollars you can revamp your old, useless *Note Pad* to *NotePad Deluxe*, a more attractive, but still useless, note pad.

Okay, it's not all bad. You can change the pad size, have any number of pages, and trash a page at the click of the button. And what's more it has an attractive, textured look to it.

If you use Apple's *Note Pad*, then this program is worth taking a look. If, like the MACFORMAT office, you prefer to place yellow sticky notes all over your Mac's screen, why change?



Some of the aliens in *Space Junkie* behave like PacMan on speed. Aha! Now I understand the game's title.

Space Junkie 1.2

ARCADE GAME

Shareware $15

In case you thought your Mac's keyboard was having too easy a time, *Space Junkie* provides some classic frantic key bashing action. The object is simple. Get them before they get you. That's right – it's a shoot-'em-up.

You can choose one of six craft, all having the same qualities – movement limited to left and right and a temperamental shooter that overheats too often for comfort. But each ship looks slightly different, so you can select your favourite and stick with it.

The aliens come in lots of varieties, a different type for each wave. Usually they

Continued on next page

FACT AND FICTION

All of the margin notes on these pages this month are either facts or questions from the program *Science/Pseudoscience*, which is reviewed on page 110. For the answers to the questions, see page 112.

QUESTION 1

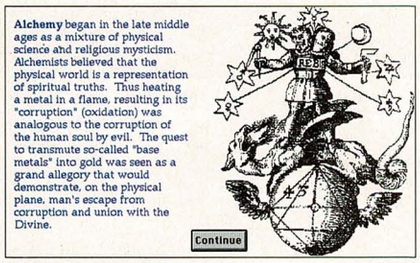
'Mozart is the greatest composer the world has known.' Because this statement is open to debate, it is probably not defendable as a fact. But is it a theory?

CONFUSED ABOUT SHAREWARE?

■ **Shareware** is a form of 'try before you buy' software selling and it's a great idea so long as you're honest. When you get some shareware, the documentation file accompanying it will tell you how much it costs – typically it's somewhere between US$5 and $40 – and where to send your money. If you like the software and decide to keep it, then you're morally obliged to cough up. Not only do you get the satisfaction of boasting to friends about how honest you are, but the author will often give you something in return for registering, like a printed manual, or updates when released. The most common problem is sending money abroad, but as many shareware authors now accept credit cards, it's getting easier.

■ **Freeware** means that you don't have to pay for it at all. There are many derivations such as postcardware, which means you have to send a pretty postcard to the author.

But freeware is not strictly the same as **Public Domain** (PD) because although you don't pay for freeware, the author keeps copyright and you have to follow his terms and conditions to use the program. This often means keeping all the files together and not using or selling them for profit.


Alchemy began in the late middle ages as a mixture of physical science and religious mysticism. Alchemists believed that the physical world is a representation of spiritual truths. Thus heating a metal in a flame, resulting in its "corruption" (oxidation) was analogous to the corruption of the human soul by evil. The quest to transmute so-called "base metals" into gold was seen as a grand allegory that would demonstrate, on the physical plane, man's escape from corruption and union with the Divine.
Continue

Science/Pseudoscience finally proves that Alchemy is not worth its weight in salt. Or lead for that matter.

follow a pattern, but sometimes they break free and fly around of their own accord. What is certain is the constant bombardment of bullets you're in for. These aliens are trigger happy beyond belief.

The graphics are attractive, although on slower machines the motion jerks about a bit. The music is a one track ditty, which gives room for the sound effects, most of which are explosion noises.

Space Junkie is quite addictive, although the gameplay could have been tweaked a bit. When your pea-shooter gun has overheated and you're surrounded by 50 alien bullets, there's only one safe move – the foetal position.

QUESTION 2

How do we do science? Very simply, by proposing an idea or hypothesis that can be tested by _____. (what?)

Science/Pseudoscience

EDUCATION

Freeware

This program tries to educate you in the basics of science – hypotheses, theories and scientific laws – using text, graphics and a limited amount of animation (such as overlapping Venn diagrams separating into two). The author explains that 45% of American college students thought Astrology had some connection with scientific fact. So distraught was he after this revelation, he decided to create *Science/Pseudoscience* to put the record straight. Unfortunately 45% of college students can't read. Never mind.

You are fed information about the basics of science, with little interaction until the quiz at the end. It is at this point you wish you'd actually been paying rather more attention to the program instead of laughing at college students, but receiving a score of 13% isn't too bad – really it isn't.

If you want to understand the basics of science, give this a glance; it's an enjoyable way of spending half an hour. But remember – Americans say maths with a silent 's', so what do they know?

QUESTION 3

The physicist is generally interested in the underlying principles governing the behaviour of matter in general, while the chemist's view is more commonly directed to the study of specific _____ . (what?)

Notebook Maker 1.3

UTILITY

Shareware $20

If you happen to be one of those people who create 8Mb Read Me files to accompany your latest creation, *Notebook Maker* is the product for you. (There, that eliminates just about everyone.)

It enables you to convert a pre-written text file into a notebook, with topic markers to assist the reader. When you write your text file, typing '<eoL>' instructs *Notebook Maker* to create a marker, and '<eoT>' means you have reached the end of that entry. The program then takes this text file and automatically turns into quite an attractive, well ordered standalone document. Once you've done all that, you can copy pictures into your creation to add a touch of colour.

In this way you can create hefty notebooks, a bit like manuals for word processors, really (I mean, does anyone read those things?) And so, rather than having to plough through the whole file, you can click on the topics you fancy to take you straight to where you need to go. Pretty nifty, huh?

QUESTION 4

Which of the following is not a natural science? Astronomy, Chemistry, Psychology, Geology, Mathematics, Physiology.

Ambiance

SOUND

Freeware

Using computers can be a stressful affair. Deadlines or targets combine with kids screaming or office noise to produce an unhealthy environment. *Ambiance* combats this by playing soothing sounds in the background.

Loading the program only requires 32K of memory, which anyone can spare, so you can have it running constantly in the background. You choose from a variety of comforting sounds which then play either in a loop or randomly. Suddenly your life is filled with tweeting birds or babbling brooks and things don't seem quite so stressfu any more.

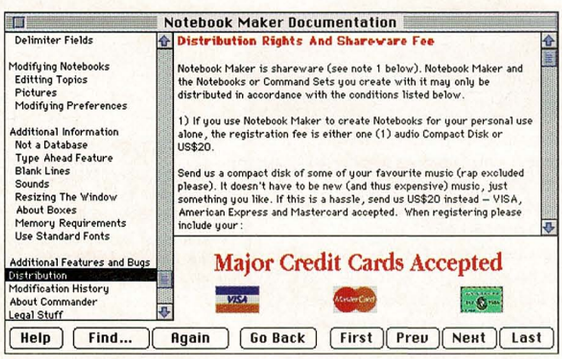
At this point *Ambiance* crashed without warning, giving me an error 25. Oh no! Something terrible is happening. Is my Mac broken? And this probably means I'll be late handing my copy in. Woe is me.

Bird Songs

NATURE

Freeware

In a similar vein to *Ambiance* is *Bird Songs*, a program designed to train your ear to recognise birds by their songs. Operation is simple. You click on a bird's name and are shown its picture while you listen to it


Notebook Maker Documentation
Delimiter Fields
Modifying Notebooks
Editting Topics
Pictures
Modifying Preferences
Additional Information
Not a Database
Type Ahead Feature
Blank Lines
Sounds
Resizing The Window
About Boxes
Memory Requirements
Use Standard Fonts
Additional Features and Bugs
Distribution
Modification History
About Commander
Legal Stuff
Distribution Rights And Shareware Fee
Notebook Maker is shareware (see note 1 below). Notebook Maker and the Notebooks or Command Sets you create with it may only be distributed in accordance with the conditions listed below.
1) If you use Notebook Maker to create Notebooks for your personal use alone, the registration fee is either one (1) audio Compact Disk or US$20.
Send us a compact disk of some of your favourite music (rap excluded please). It doesn't have to be new (and thus expensive) music, just something you like. If this is a hassle, send us US$20 instead – VISA, American Express and Mastercard accepted. When registering please include your:
Major Credit Cards Accepted
Help
Find...
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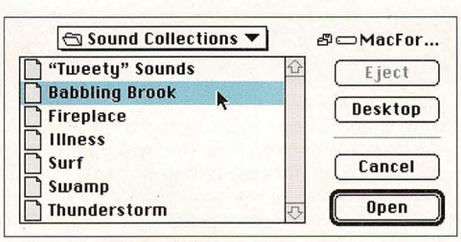
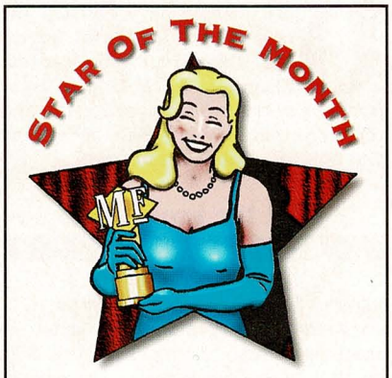
You can import graphics files into *Notebook Maker*, as these credit card logos show. If only I had the money to pay up... Sigh.



With *Ambiance* you can select from a range of sounds to play in the background. Hmm... think I'll have a roaring fire. Throw another lion on, I'm getting a little peckish.



Grizzly 0.4

BEAT EM UP

Shareware $15

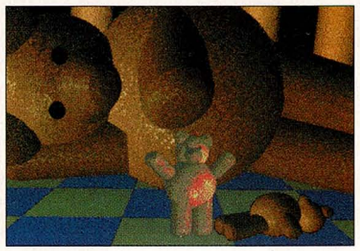
Currently I know of no commercial beat-'em-ups on the Mac. This is almost certainly due to the fact that they are aimed at violent adolescents, not many of whom boast a Macintosh in their CV of street cred. It was therefore even more fun to find a shareware game of this genre, especially when it's rather good.

To counter the violent image of this type of game, *Grizzly* shows two cute teddy bears knocking the stuffing out of each other. The graphics are perfect with 3D rendered fluffy toys bouncing and leaping around the screen.

Controls involve dodging back and forth, ducking and diving, and launching punches and flying teddy bear kicks against your opponent. There are a variety of extra secret moves, such as one bear flinging itself headlong across the screen into the stomach of the other. But surely the best move is where a bear pulls his head off and throws it at his opponent. Violence and humour in just the right proportions.

To add to the atmosphere there is loud thumping music in the background, complemented by some terrific samples of yells and karate chops. This is an amazing piece of shareware.

The drawback with this, and indeed all other beat-'em-ups, is that you tend to end up bashing the keys furiously because there are too many of them, and your bear often doesn't respond. This is not a fault in the game, but a result of him being bashed by the opponent. Still, it's slick, fun, frantic and only $15.



If you switch *Grizzly* to demo mode, you can watch both bears slog away, beating each other's brains out. Kids will love it.

KISS/GS4

GRAPHICS

Shareware $10

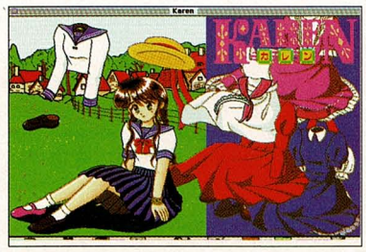
Kisekae, as the Read Me file tells me, is Japanese for changing clothes, and that is what this software is all about. It's a computerised version of the children's paper game where you put clothes on cut-out dolls and secure them with fold-back tabs.

Fair enough, I thought, a pleasant children's game, which indeed it is. Sort of. There are a variety of fresh young girls, each of whom has a variety of clothes and accessories which can be dragged with the mouse. This makes for a simple game of swapping clothes and dressing dolls up. The whole program works very smoothly, it's intuitive and very colourful.

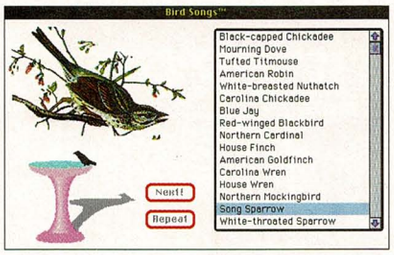
So why is it in the bin? The problem is that the Read Me file isn't aimed at children and nothing about the program is either. Indeed it seems to be written for an adult audience, which rather begs the question, why?

I had my suspicions, but the one saving grace of this program was that you couldn't remove *all* of the clothes from a girl. The underwear stayed on. Suspecting the worst, I spent some time searching through all the possible screens. Sure enough, if you know where to look, you can totally strip some of the girls. It's hardly explicit, but why is it there?

So the question is, am I a sick minded pervert who gets his kicks from thinking the worst of people? Or is this software designed for paedophiles? Or was I just desperately searching for a few cheap thrills to escape my life of drudgery (netsurfing and playing stupid games)?



If you like removing clothes from little girls then *KISS/GS4* is just the program for you. Now seek professional help.



Bird Songs is a delightful program to help you identify birds. Expect to see twitchers with colour PowerBooks roaming the undergrowth.

cheeping its socks off.

The educational part comes in the shape of a game. It plays the songs in random order and you need to finger the bird, so to say. The only hitch is that, like most shareware, it's American, so you'll have a wonderful knowledge of birds that only turn up in this country by accident.

However, the second part of the program is perhaps more useful. It can play all the bird songs randomly in the background. The program requires more memory than *Ambiance* but has many more birds. Hitch up your stereo and turn your room into a nature reserve.

Personality Test

QUESTIONNAIRE

Shareware $12

Horoscopes are very popular. And yet very few people who read them are so gullible as to actually believe in them. So why do they read them? Because everyone's favourite subject is... themselves, of course.

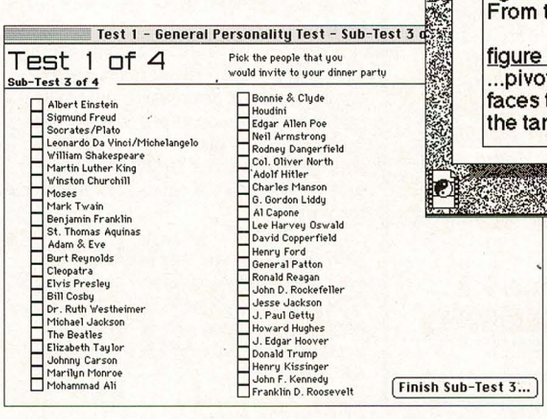
So indulge yourself in some free navel inspection with *Personality Test*. The full version consists of several tests, but the unregistered version contains just one, although this is quite comprehensive and involves four sub tests.

The first two sub tests involve picking attitudes and descriptions which best and least fit you. There's a nice interface and it's quite good fun, although a few problems cropped up. One of the tests asks whether you are liberal. The thing to bear in mind here, is that although liberal means middle of the road in this country, choosing it in this American program results in a personality akin to the Communist Party chairman.

The last two tests involve choosing who you would invite to a party and what jobs you would like to do. Again this is fun, but I'm not sure how much you can tell about a person from who they would like to meet. I mean, I would invite Plato but we would probably end up in a brawl over Ideal Forms and the nature of poetry. And I wouldn't apologise.

After all the tests, you are presented with an analysis of your personality which reads somewhat like a horoscope. I don't know how useful all this is, but at least it's an awful lot cheaper than going to a psychiatrist and paying to lie on a comfy couch.

So I know what you are wondering. What did the program have to say about my personality? Well amazingly, I actually *am* a sick minded pervert who gets his kicks from thinking the worst of people. Is this program clever or what?



Personality Test asks you who you would invite around for dinner. So let's see, Ruth Westheimer, Jesse Jackson, Albert Einstein, Bill Cosby and um... ah yes, Adolf Hitler. House on fire!

KARATEstack

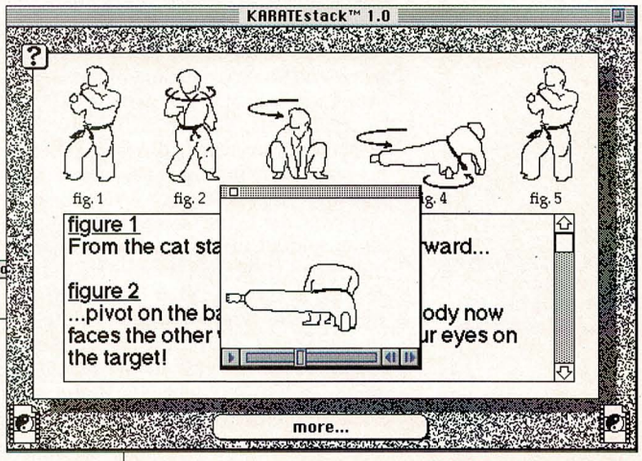
HYPERCARD

Shareware $15

Before anyone creates a program about a subject they want you to pay for, they should ask themselves why you'd fork out for a piece of shareware rather than go to the library and get a book out for free. The nearest library's often 50 miles away nowadays, but that's not the point.

The author of this stack about karate has justified its existence by the inclusion of QuickTime movies showing the various offensive and defensive moves. Unfortunately the movies aren't video clips of real people, but instead they're jerky line drawings. It's very informative though and is simple enough to interest complete beginners eager to learn more. There's a section on training and how to avoid injury which is all very worthy.

If you're an eight stone weakling who is tired of getting sand kicked in his face, then buy a gun. But if you fancy learning Karate then this *HyperCard* stack is a good place to start.



KARATEstack is an invaluable weapon against the increasing threat of being attacked by maniacs wearing pyjamas.

QUESTION 5

'If one says audibly, "I am God", the sound vibrations literally align the energies of the body to a higher attunement.' So said Shirley MacLaine. Is this a hypothesis?

QUESTION 6

Two of the common physical sciences that you probably know about are chemistry and physics. Chemistry is mainly concerned with the study of _____ . (what?)

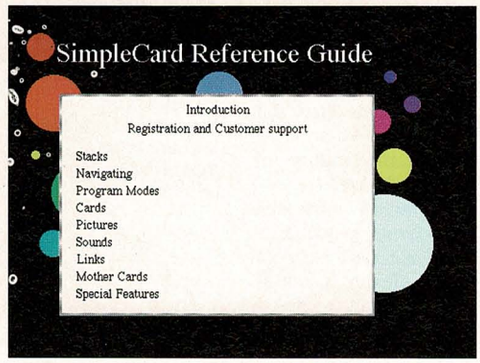
QUESTION 7

To get hypothesis to theory, only a single observation or experiment may be sufficient. Is the same true when going from theory to law?

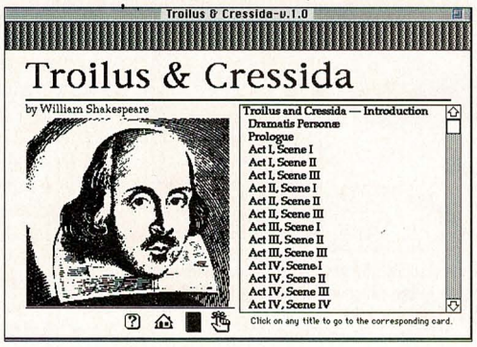
QUESTION 8

In the fifth century BC, the Greek philospher Leukippos wrote of atoms; that there is an infinite number of them, and they are invisible on account of their small size. Was this statement a hypothesis?

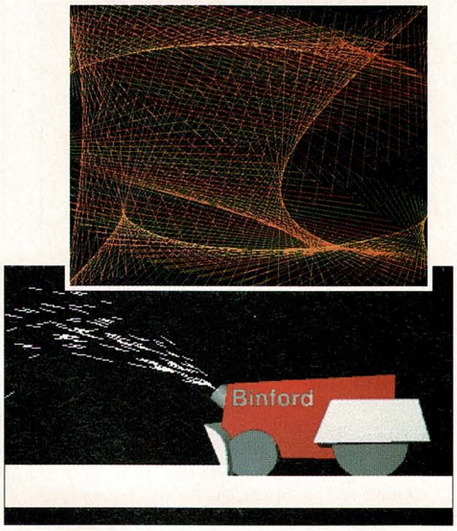
Continued on next page



SimpleCard comes with a stack which explains everything you need to know about the program and also acts as an example of what you can do.


Troilus & Cressida-v.1.0
Troilus & Cressida
by William Shakespeare
Troilus and Cressida — Introduction
Dramatis Personæ
Prologue
Act I, Scene I
Act I, Scene II
Act I, Scene III
Act II, Scene I
Act II, Scene II
Act II, Scene III
Act III, Scene I
Act III, Scene II
Act III, Scene III
Act IV, Scene I
Act IV, Scene II
Act IV, Scene III
Act IV, Scene IV
Click on any title to go to the corresponding card.

The introductory screen to *Troilus and Cressida* contains a very poor quality digitised photo of the author. Let's hope he gets a better one taken soon. (I just hope it's not a true likeness.)



DarkSide has over 40 modules to produce fancy graphics on your screen. Pity you won't be there to see them.

FACT

Bodies that possess opposite electrical charges exert an attractive effect on each other.

SimpleCard 2.01

MULTIMEDIA AUTHORING

Shareware $5

Multimedia Authoring is all the rage these days, but have you ever tried learning to use a package like *Director*? The learning curve resembles the north face of the Eiger and is about as friendly. Even *HyperCard* and *SuperCard*, which are compared in next month's MACFORMAT, are tricky. Thank goodness then that someone has produced an easy to use program that creates simple presentations.

SimpleCard is, as the author states, a mini *HyperCard*. It works on the same principles of building stacks up from individual cards. You can go through the cards in sequence or jump forwards and backwards in any way you like.

It's not big, it's not clever, but it is cheap, simple to use and requires only 600K. Well worth a look.

FACT

Atoms consist of a central positively-charged nucleus, surrounded by negatively-charged electrons.

Troilus & Cressida

PLAY

Freeware

There's a new bloke on the Internet called Will Shakespeare and he's created a *HyperCard* stack of what I assume to be his latest play. The stack itself is very good with the entire text laid out in order of Act and Scene, making it easy to navigate your way around the play.

There's an extra screen for typing in notes, and all of the text can be copied and pasted. This is all good news, but the downer is that the play is rubbish. Not only can this guy not spell correctly but his grammar is all over the place. Still, according to the Read Me file we should see the rest of his plays appearing in the same format, and all for free, which is good news for people who like this modern outlandish stuff.

FACT

It was not until about 1600 that the idea of the scientific method, and thus of science as we know it, was proposed (mainly by Francis Bacon).

DarkSide of the Mac 4.2

SCREENSAVER

Freeware

A long time ago in the days of green monitors, there was a phenomenon known as burn-in. If an image stayed static for too long, it was burnt into the screen and still showed even when the monitor had been turned off. To solve this, someone invented the screensaver, a program which altered the screen image if the computer was left untouched for any length of time. It's a pity the person couldn't patent the idea – they'd be as rich as Bill Gates.

Modern monitors, however, do not suffer from this problem, and haven't for a long while. Just think about it. Many Macs are left on near permanently, and although they may be used a lot, the white menu bar is always there. Yet when you turn the monitor off, there's no residual image left.

However, screensavers are more popular now than ever before. This has nothing to do with saving your screen. A whole generation of young computer fans has grown up utterly unaware that this is the supposed purpose of a screensaver. For them, it's just a fun program that draws entertaining pictures and patterns.

What's more bizarre is that people spend relatively large amounts on the most popular titles, such as *AfterDark*. If you really want a screensaver, then take a look at *DarkSide of the Mac*. It comes with dozens of modules that produce effects from simple fireworks to my favourite module, which turns your screen into a sliding squares puzzle.

DarkSide of the Mac does have two things going for it though. First is a password facility which means that the screensaver can only be turned off if you know the correct password. Helpful for stopping snoopers.

Second, is that unlike almost all other screensavers, *DarkSide* is not a System Extension, but an application. The downside is you need to have it running in the background constantly, but at least it only needs 64K of RAM, which is as much as an Extension would take for itself anyway. Being an application, however, it causes less conflict problems and works on any Mac. It will even automatically install an alias of itself in your Startup Items folder, so you can't get around it by restarting without Extensions. If you're after a screensaver then this one's great. It's just a shame you don't need it. **MF**

FACT

All experimental studies of chemical bonding are consistent with the known behaviour of electrostatic forces.

ANSWERS

1. No 2. Experiment
3. Substances
4. Mathematics 5. No
6. Matter 7. No 8. Yes

WHERE TO FIND THEM

We often get calls from readers who want to know how to get hold of some of the shareware reviewed in these pages. Well, here are some of the methods:

1. Buy the CD-ROM edition of MACFORMAT: all the shareware we review in each issue is on there in a separate folder. There's also loads of other shareware on the CD-ROM every month, sorted into separate categories for you.

2. Write to a shareware dealer; there are several who advertise in the back of MACFORMAT. The dealer should have the program you're after, especially if he subscribes to our CD-ROM edition!

3. Use the Internet, if you have access. One of the best sources around is Imperial College at **src.doc.ic.ac.uk**. Use ftp to connect (login: anonymous; password: your e-mail address) and cd to computing/systems/mac. Personally, I use the umich directory, but sumex is fine as well.

5. Local user groups often have libraries of shareware, so see if you have one near you. There are some listed in our Reader Ads section (have a look on page 131).

Finally, wherever you get your shareware, beware of viruses. At the moment, *Disinfectant 3.6* (on this month's cover disk and CD-ROM) is the best and cheapest way of staying safe.

Stop this madness!

Macs are becoming more powerful, but software is becoming more memory-hungry. Stop the rot, says a MACFORMAT reader.

I've read reviews of System 7.5. I've read lots of software reviews and upgrade announcements. I have bought some new software (I am a television editor working on the Avid NewsCutter, a Macintosh software/hardware system for editing video newsclips for transmission). And finally, I have looked around at the general trends in software design and expectations. It looks like we're going to have applications capable of doing things we only dreamed of a few years ago. That's fine, but what about the implications?

We all appreciate advancements in hardware and software, but I think many users are growing tired of the current trend in big-memory-hog software. I for one will look more and more to software which is lean on the hard disk and in RAM. That's why I'll be hard pushed to move to System 7.5.

This offers little more for the average user than what's already in 7.1 or shareware utilities, other than QuickDraw GX. But the toll it takes on memory is incredible. How can you release System software that wants at least 3.5Mb, preferably 8Mb? I am already fed up with applications that take 10Mb on my capacious hard disk, 4Mb on my otherwise plentiful RAM, take months to learn and get ever slower than their previous versions.

It's time Mac magazines evaluated software on how expensive and bulky it is – you need a new computer every time you update.

Everything has got cheaper over the last few years – CPUs, monitors, hard disks, printers, scanners, you name it. That alone is good news, except that nowadays you look at 340Mb hard disks for your average needs, whilst a few years ago 120Mb was plenty. So, you're still looking at the same cash outlay. But the one thing that has stayed rock-solid in price is SIMMs. The going price for 1Mb is £40, the same as four years ago, and no bulk discount: 4Mb, £150; 8Mb, £300. Getting enough RAM to use your software can cost more than your computer.

So why should software get hungrier and hungrier? We've entered the 'RISC' era. They realised processors were loaded with more instructions than necessary. So they got leaner and faster. Are software engineers now trying to fill the vacuum?

It's about time Mac magazines start evaluating software on how bulky and expensive it is, when you take into consideration that to use it satisfactorily you need a faster CPU, a larger hard disk and yet another 4Mb SIMM – practically a new computer every time you update.

I don't want to sound reactionary: we are talking about real-world usage here, not just visions! The editor of *MacUser US* says that that's just the way it is. The way things are doesn't necessarily mean they are always good. And leaving them as they are seldom makes them any better and often makes them much worse. She concludes with a cheerful 'software will have to catch up with hardware, chipping away at the abundant processing power'.

Is it really worth updating to System 7.5 for a few extra toys, or is it just a waste of costly megabytes?

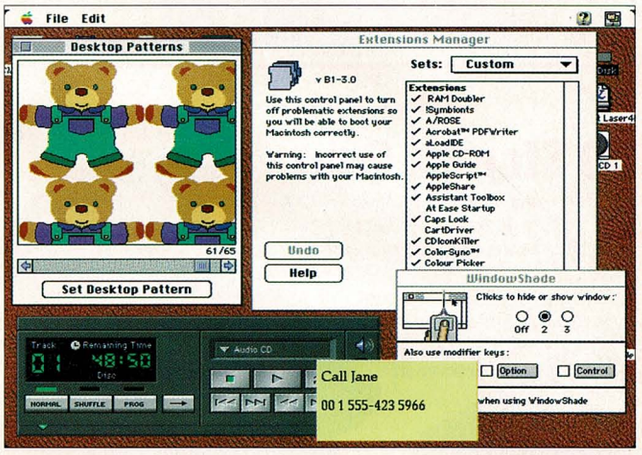
What a sorrowful conclusion. And guess who has to chase up on both? Us users, inevitably coughing up more money in the process!

Hardware engineers are doing their best to give us better, faster machines, only to have software authors bog it down again with fatter and fatter software, so we go back to where we started. They've got to be stopped! One way to do this is by writing nasty evaluations for software that doesn't comply with the 'RISC' philosophy: fewer instructions; faster performance; no additional cost. Years ago I was looking forward to RISC chips; now I look forward to OpenDoc.

Alberto Tabone
Milan, Italy
100014.3425@compuserve.com

YOUR SHOUT

The opinions expressed on this page are those of the authors, not necessarily those of MACFORMAT or Future Publishing Ltd. If you have something to say, write to 'Soapbox', MACFORMAT, 30 Monmouth Street, Bath BA1 2BW. ASCII text on disk would be nice, but isn't essential. We reserve the right to sub-edit your grammar, but won't alter the sense of any opinions.



WHAT'S ALL THE FUSS ABOUT?

In MACFORMAT 21's AppleTalk, Gordon Reid from Australia asked why System 7 and later need so much RAM. He may be a 'Lecturer in Computer Graphics', but if he thinks System 7 takes up 1,700K, he must know next to nothing about Macs. According to 'About This Macintosh', System 7.1 requires about 1,040K plus 4K per Finder window on my IIvi; I can run the MF20 *Vistapro* demo, requiring 4,000K, on a machine with 5Mb RAM – and anyone who thinks extra RAM requirements 'slow everything down' is at least one Phong short of a full rendering. (If anything, it's the opposite – extra buffers save disk accesses.)

Does *Macromind Director* require QuickTime (an extra 600K, supporting at least seven different complex compression algorithms in Version 1.6, more in Version 2.0), Mr Reid? Were you running that under System 6? Does your 'new Macintosh' have a CD-ROM drive (by default, another seven Extensions) by any chance? Are you running any other Extensions to control peripherals such as a scanner? Do you really expect these kinds of additional functionality to come free?

Arguing that 5Mb is needed for System 7.5 to 'fully function', when huge chunks of it – including QuickDraw GX, PowerTalk and MacTCP, which are entirely optional *new* functionality – are easily excluded by checking a few boxes in the Installer dialogue, is like saying that your existing System isn't 'fully functional' because it doesn't have *Infini-D* built-in as a desk accessory. The absolute minimum install of System 7.5 should take less than 5Mb of hard disk!

The main reason the operating systems of other machines sometimes have smaller apparent memory requirements than the Mac is that they do next-to-nothing; all the functionality is built into the applications, often inconsistently between different ones, whereas on the Mac all the common functionality is in the System Toolbox, from where it's shared consistently by everything else (except Micro$oft* applications). Just look at the relative hard disk/memory requirements of otherwise identical applications available on both the Mac and other platforms to see this.

If only the Aussies played cricket like Mr Reid understands computers, we might stand a chance. The thing that really worries me is why you printed his letter without explaining why he's totally up the billabong yourselves, rather than appealing to us to do it for you...

David Lockwood
Leamington Spa

* Interestingly, *MacWritePro* accepts 'Micro$oft' as a valid spelling...

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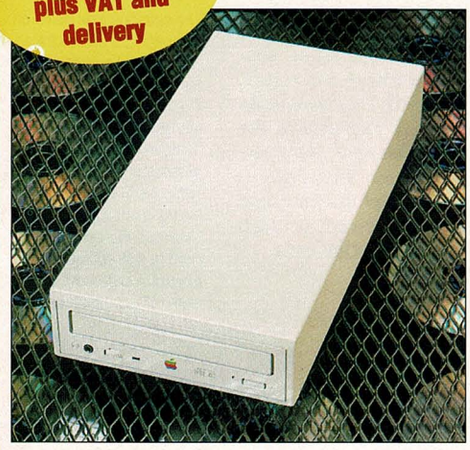

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ClarisWorks, Excel, Word and FileMaker help

Want more than the manual? These handy Black Mouse guides include pages of practical advice and worked examples to help you get the most from your software. Titles cover *ClarisWorks, Excel 4, Claris FileMaker Pro* and *Word 5*. Now *half* original RRP!

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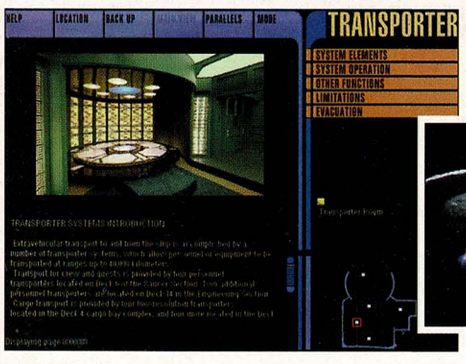

Boldly tour the USS Enterprise

(MACFORMAT 20: 92%)
A must for techies and Next Generation Trekkers everywhere. A beautiful QuickTime VR video-clip tour of the Enterprise, narrated by William T Riker (Jonathan Frakes). Investigate the bridge, crew's quarters, transporter room – or view the outside of the ship from space! Schematic diagrams and text give masses of information on all the fictional technology you encounter. An excellent and innovative CD-ROM that brims over with fresh ideas.

Star Trek Interactive Technical Manual
Price: £39.95
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MACFORMAT Tornado Fax Modem Offer

Sad? Lonely? Bored? Your Mac could be your passport to popularity and social acceptability – if only you had a modem as well! You could communicate with Bulletin Boards, send and receive e-mail, join discussion groups, download all the latest shareware, even surf the Internet. With a fax-modem you can send faxes direct from your Mac and receive them straight on your Desktop.

The Tornado fax-modems from Electronic Frontier are sturdily built, with metal cases rather than the fragile plastic you commonly find. They are both super-efficent, super-fast, BABT approved modems and are fully Hayes (industry-standard) compatible. They have auto-dial and auto-answer, plus data compression built-in. They come complete with all the cables you need, plus *Delrina Fax Lite* software. And best of all, we can offer them at very affordable prices!

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The Tornado 14400 modem is an excellent fax modem at a bargain price. V.32bis connection speeds, plus V.42bis compression and error correction ensure efficient data transfer whether you are using it as a data modem or as a fax modem. It features a comprehensive nine-LED front panel status display, with auto-dial, auto-answer built-in. It is easy to set up and simple to operate.

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28800 Fax Modem

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If it's power you're after then the 28800 is the fax modem is for you. It's available at the affordable price of under £200 – including VAT and delivery.

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Internet Starter Kit

This is the second edition of this indispensable guide to everything you need to know about using the 'Net. The book comes complete with The Internet Starter Kit disk, which is packed full of useful software. Inside you'll find practical guidance on how to get the most from the 'Net without going bankrupt, and where to look for all the latest info.

Internet Starter Kit
second edition
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The Internet Explained Video

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- What's out there, and how to get at it
- What hardware you need to get connected
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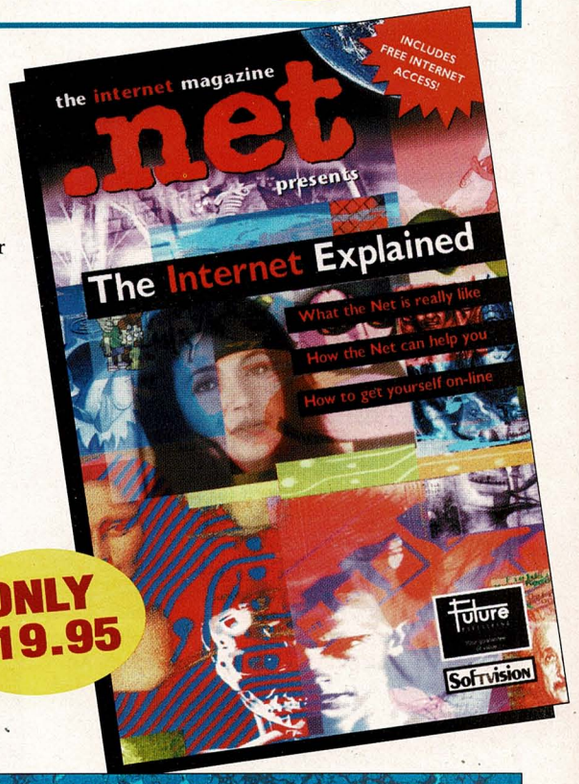

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MACFORMAT Back Issues

Missed an issue of MACFORMAT? Collection incomplete?

ISSUE 9

February 1994

■ **On the disk:** *SimCity 2000 demo; Greg's Browser; Bobzilla* XTension; *QuarkXPress 3.2* patcher

■ **Inside:** Bumper games guide: *SimCity 2000, Populous, Myst* and more; *FreeHand 4* reviewed; tips for keeping your Mac safe; *Interactive Lover's Guide*; plus language tuition software

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HD Disk MFHD09

ISSUE 10

March 1994

■ **On the disk:** Over 30 indispensable True Type fonts; *Apollo* and *Disinfectant 3.3; ShutDownFade*

■ **Inside:** Integrated packages head-to-head; tips and tricks on graphics; *Creative Writer* review; *FA/18 Strike Hornet* review; Editing for DTP; plus Canon BJC-600 printer on test

Order code:
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ISSUE 14

July 1994

■ **On the disks:** *Populous 2* demo; *HyperStudio; Disinfectant 3.5; Photina*

■ **On the CD-ROM:** sorry, CD-ROM edition is no longer available

■ **Inside:** Multimedia special – how to join the CD-ROM revolution; Natural Media techniques; reviews of *7th Guest* and *Flying Nightmares*

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ISSUE 15

August 1994

■ **On the disk:** *GrayStation; Vistapro* demo; *Quill*

■ **On the CD-ROM:** sorry, CD-ROM edition is no longer available

■ **Inside:** Art on the Mac, including reviews of *Dabbler, Fine Artist* – and the Wacom, CalComp and Summagraphics tablets; reviews of *Vistapro* and *ClarisWorks 2.1*

Order code:
HD Disk MFHD15

ISSUE 16

September 1994

■ **On the disk:** *ColorStation 2* and *HomePublisher* demos

■ **On the CD-ROM:** sorry, CD-ROM edition is no longer available

■ **Inside:** Our guide to weird Mac software; plus reviews of *Multimedia Workshop, HomePublisher* and *Return to Zork*; plus a foreign correspondent's Mac story

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HD Disk MFHD16

ISSUE 17

October 1994

■ **On the disk:** *Crunch 2.0* and *Conflict Catcher* demo

■ **On the CD-ROM:** sorry, CD-ROM edition is no longer available

■ **Inside:** Discover how to future-proof your Mac with our top add-ons; reviews of *Sensory Overload, Wrath of the Gods* and *WordPerfect 3*; plus *Ritz Payroll*

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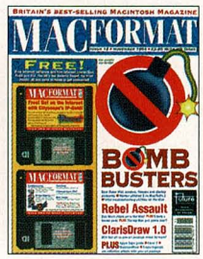

ISSUE 18

November 1994

■ **On the disks:** Internet software bundle; troubleshooting utilities

■ **On the CD-ROM:** *ClarisWorks 2.1; Rebel Assault* and *Sensory Overload* demos; 200Mb of utilities

■ **Inside:** How to beat those startup problems; plus *Norton Utilities 3* vs *MacTools 3*; plus review of *ThemePark*

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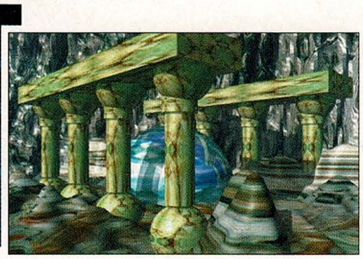
HD Disk MFHD18



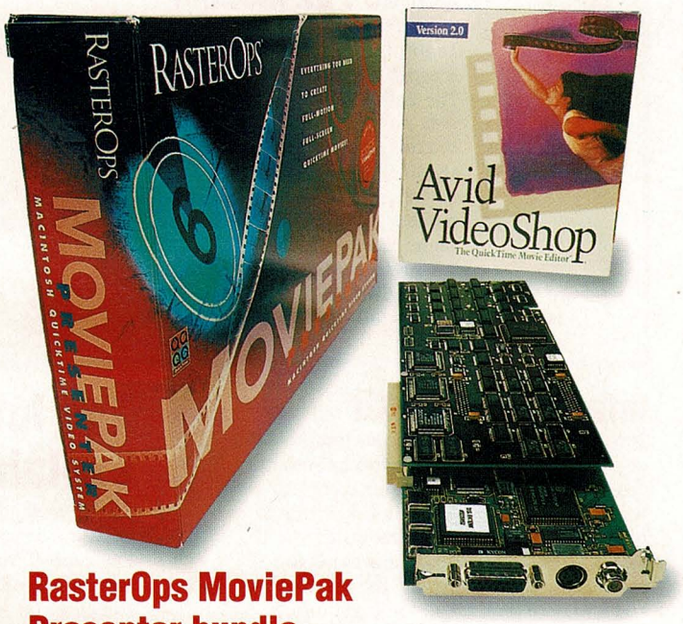
KPT Bryce SAVE over £35 on RRP

(MACFORMAT 20: 91%)

Produce incredible landscapes on your Mac with *KPT Bryce*. You have complete control over the shape and form of your terrain. Clouds obey your every mouse-click and a storm can be conjured up in seconds. Journey into space; visit unknown planets and their mysterious moons.

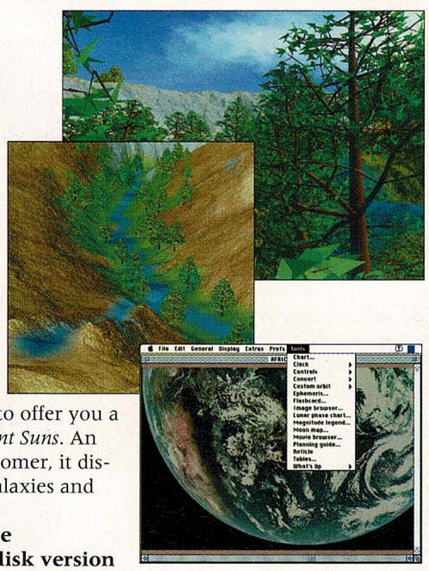
Once you've started to use *Bryce* you'll be unable to stop creating wonderful graphics. Reviewed in MACFORMAT 20, *KPT Bryce* scored 91%. It requires an LCII or better, 4Mb of free RAM, and System 7 or later.

KPT Bryce Price: £115.00 Order code: MFKPT



Exclusive

Vistapro with FREE Distant Suns



Vistapro is a virtual landscaping package and MACFORMAT Classic to boot! We gave it the thumbs up in issue 15, with a well-deserved 90%. It enables you to create your own three-dimensional landscapes, for use as backgrounds or simply for the sheer joy of it. Requires: a colour Mac running System 7, with at least 4Mb of free RAM.

Together with *Vistapro*, we're able to offer you a *free* copy of the multimedia title *Distant Suns*. An essential guide for the desktop astronomer, it displays over 255,000 stars and 2,000 galaxies and normally retails at £39.95.

Vista Pro and Distant Suns bundle

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HD disk version
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RasterOps MoviePak Presenter bundle
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ISSUE 19

December 1994

■ **On the disk:** Hot action with *Wolfenstein 3D*; *Kid Pix*

■ **On the CD-ROM:** sorry, CD-ROM edition is no longer available

■ **Inside:** The lowdown on accelerators; the 20 top Mac games; SCSI trouble-shooting; *IntelliTalk*; OCR user guide plus Internet books reviewed

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HD Disk MFHD19

ISSUE 20

January 1995

■ **On the disk:** Build worlds with *Fractal 1.2; Maniac 2.1.1; RAMDisk+ 3.23*

■ **On the CD-ROM:** sorry, CD-ROM edition is no longer available

■ **Inside:** Virtual reality special: *KPT Bryce* and *Star Trek Tech Manual*; *Word 6* versus *Nisus Writer;* how to write games for your Mac

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HD Disk MFHD20

ISSUE 21

February 1995

■ **On the disks:** *VideoShop 2.0*; plus 3Mb of games and utilities; *Trojka; WordSmith*

■ **On the CD-ROM:** Demos of *Premiere 4.0, Marathon, Ghosts,* and *Star Trek: TNG, Technical Manual*

■ **Inside:** Video editing on Macs: how to do it; plus budget games; and what to buy if you run out of disk space

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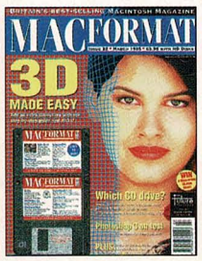

ISSUE 22

March 1995

■ **On the disks:** *Infini-D* demo; *MacConcept; Blobbo*

■ **On the CD-ROM:** 3D spectacular; *The Crystal Rainforest; VideoFusion*

■ **Inside:** How to create 3D images on your Mac; *Photoshop 3.0* reviewed; font problems solved; CD-ROM drives tested; and the most realistic flight sim ever

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CD-ROM MFCD22
HD Disk MFHD22

ISSUE 23

April 1995

■ **On the disk:** *Oh-no! More Lemmings; StuffIt Lite 3.5*

■ **On the CD-ROM:** Comics collection; *PAWS; Sources of Faith; Marathon*

■ **Inside:** Comics on the Mac – interviews, reviews and how-to's; *FreeHand* v *Illustrator*; colour printers; reviews of *XRes* and the best Mac game ever, *Marathon*

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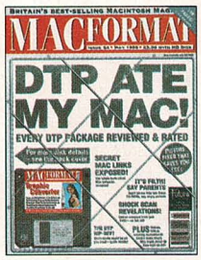

ISSUE 24

May 1995

■ **On the disk:** *Graphic Converter; MacCheckers!*

■ **On the CD-ROM:** Demos of five top DTP programs, including *QuarkXPress* and *PageMaker*, plus *Photoshop 3.0* and *Claris Works 3.0*

■ **Inside:** Every Mac DTP package reviewed and rated; Colour scanners; networks explained; *PhotoFix* reviewed

Order codes:
CD-ROM MFCD24
HD Disk MFHD24

ISSUE 25

June 1995

■ **On the disk:** *Knot 1; MacSnails; Glypha III*

■ **On the CD-ROM:** Get started with MIDI; plus Demos of *Alone in the Dark; Wing Commander; Loony Labyrinth, A-10 Attack.*

■ **Inside:** All you need to know about PowerMacs, Fax-modems tested; plus some 'Cosmic' CD-Roms

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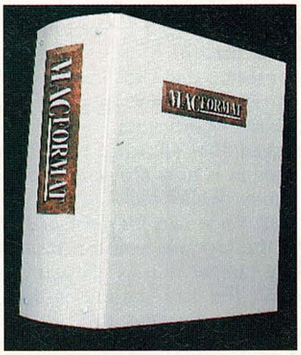

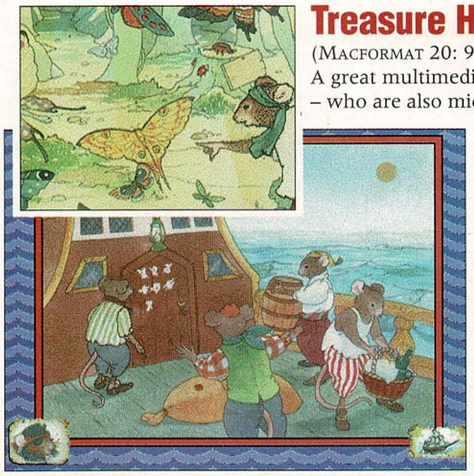

Treasure Hunt

(MACFORMAT 20: 90%)

A great multimedia title for kids. A group of pirates – who are also mice – set out in their ship to find treasure. They wander around a treasure island, with some gorgeously illustrated clues, until they find it. The pictures animate and there's music too. A unique feature is the bedtime story mode: the CD-ROM repeats itself at ever-decreasing volumes until your child falls asleep...

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King's Quest VII

With four more sequels than *The Madness of King George III*, the *King's Quest* series goes from strength to strength. Garrick Webster trolls about looking for his princess bride.

Not only does *King's Quest VII* have a smart animated intro, but the cartoon-like quality is upheld in the in-game sequences – as can be seen here.

Buying a sequel game is a bit of a lottery. You could pick up one that vastly improves on its predecessor. Alternatively, you might load up the game and hear a Godly voice saying: 'It's not you,' because the game you've just paid good money for is really just a rejigging of a tired old formula.

Seven, however, is definitely the lucky number for this particular game series. Humorously subtitled 'The Princeless Bride', this is a charming, uplifting graphic adventure about a princess who's kidnapped by the troll king. With a style and basic storyline very similar to what you'd find in a Disney film, the best word to describe *King's Quest VII* would have to be 'nice'.

A nice touch. If you pick up an inventory item then click the eye on the control panel, you can rotate 3D renderings of everything you pick up.

Now, 'nice' may be a sickly sounding word, but unfortunately, that's the way it is. This is not a heavy, oppressive game packed with eerie mystery or blood and guts. Nor is it full of violence or dystopian visions of some hideous cyberfuture. No, this game is set in the magical realm of Eldritch where even the trolls are a pretty friendly lot and where beautiful young princesses can whimsically imagine their Prince Charming without a care in the world. See, nice.

Well, things are nearly that perfect and would be utterly idyllic, were it not for a particularly wicked witch called Malecia. Her evil plan is to make Eldritch a lot less nice and attractive and her first step down that road is to suck the young Princess Rosella into a whirlpool and maliciously turn her into a troll. At the same time, she uses a cyclone to whisk poor unsuspecting Valanice, Rosella's mother, off into the desert.

Most of this is imparted to you by the game's remarkably well-animated introductory sequence. Although the intro runs in a window that only takes up about a quarter of the screen (on a 13-inch monitor), it's something you'll have to watch at least a few times before you grow tired of it. The top quality sound, animation and use of colour set both the narrative tone and graphical standard for the rest of the game.

And after all, what you're really interested in is how the game looks, feels and sounds while you're actually playing it. Well, for a start it's quite original, thanks to the fact that you can begin play with any one of the six chapters. So, if you don't feel like starting at the beginning with Chapter One, then start at Chapter Four or wherever you want to. Still, to experience the whole story with all its challenges and twists, it's really best to start at the beginning.

Another innovation is that you get to play both Rosella and her mother, Valanice. Starting with Chapter One, you're in control of Valanice and it seems that your main objective is to find and free Rosella. But once you've completed Chapter One, you find yourself in the role of Rosella (in her troll form) and it shortly transpires that not only are you bidding for your liberty, but you also have to try and stop evil Malecia's plans to cause a volcanic eruption which will destroy Eldritch.

Lateral thinking

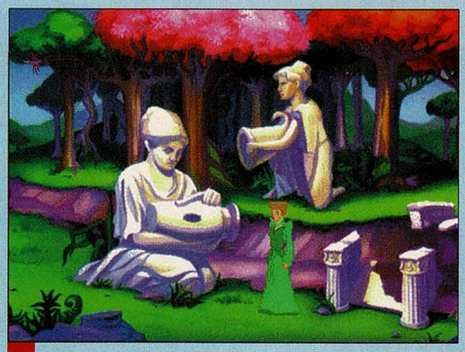
If everything thus far makes *King's Quest VII* sound like a game for kids, let me tell you about the puzzles. Despite the Disneyesque qualities of the animation and storyline, the tests the game offers are no Mickey Mouse affair. They're difficult enough to strain your lateral thinking near to its limits, and they're also quite time consuming. Most of the puzzles are fun and solving them rewards you with the game's great sounds and pictures, and, obviously, takes you into the next part of the story.

Unfortunately, when you get into the game a bit, you find that its better qualities are not as consistently spread as they could be. Chapter One, for instance, is set in the desert and sees Valanice trying to

Six scenes from the quest

1 Entitled 'Where the Blazes am I?', Chapter One sees Valanice in despondent mood and stuck in a desert with only annoying rodents for company. Will the desert spirit help her, and can she open the portal to a better world?

2 Poor little Rosella wakes up a trolless destined to be Queen of the Trolls through marriage to the King. Oh well, a troll is as a troll does, unless the troll turns human again, which is what Rosella must do if she's to escape a troll hubbie.



3 'The Sky is Falling' is the third chapter and in this one Valanice finds herself in a realm of psychedelic red and pink trees (a Fauve landscape?) and hungry Gila monsters. First, though, she has to cross this rather big dried up riverbed.

Given the choice of a little harmless black magic or plastic surgery...

1 Having gathered up some baked beetles, a silver spoon and a crystal dragon's scale among other bits and bobs, Rosella implores the troll Mathilde to make her human again – those short legs just make getting around so much harder.

2 Oops. Things don't go off quite so well first time around. Something must be missing from the concoction. Oh yes. Hair of troll is also needed. Handy that we have a troll on the premises then, isn't it. Just one moment... Shazam!

3 And Rosella is back to normal, beautiful as ever. But she's still stuck underground in the troll kingdom, and there's still Malecia to deal with. Oh, it's tough being a beautiful princess – people just get so jealous and resentful.

barter with a kangaroo rat, fend off a giant scorpion and eventually unlock a portal leading into a subterranean cave system. It's challenging, it flows well, and it's a lot of fun.

Chapter Two, on the other hand, is very short on vigour. Your main task is to get Rosella back to her human form by collecting the ingredients to a spell. These include baked beetles, a crystal dragon scale and a silver spoon, among other things. Basically it's a standard 'collect the ingredients' scenario very common in games of this ilk. The puzzles don't seem very hard and the animations slow right down. In one scene, it takes Rosella two and a half minutes just to get across the screen. Okay, I know trolls have shorter legs, but the wait was ridiculous, and I was playing on a 60MHz PowerMac.

Another slight problem with *King's Quest VII* is that things are a little opaque in places. No, I know it would be all too easy if you could envision the solutions to problems immediately, but in some instances the possibilities of what you can do are obscured by useless dialogue. At one point you find a cave with glowing green stuff dripping from the stones. It's obviously something you can put in your inventory, but instead of letting you pick it up straight away you have to wait for Rosella to make a little speech about it. Even after the speech the green sulphur doesn't become available until you've found out you need it. It's this kind of linear routing the game occasionally subjects you to that gets tiresome.

Still, we've been playing *King's Quest VII* at my place for over a week now. The story, and the characters in particular – from the bespectacled kangaroo rat to the crystal dragon to the troll king – pretty much manage to overcome the slowness of the game. If you've got kids, they'll probably like to play it alongside you, and like many adventures, this is a great title to play with one or two other people helping you. If you're easily charmed by lighthearted fairy tales about princesses, witches, trolls and cuddly little animals, this is definitely a game for you. Whatever you do, don't let the fact that this is a sequel put you off. **MF**

KING'S QUEST VII

Price: £52.82. Out: now.
Requires: LCIII or better, 8Mb of free RAM, System 7.0.1 or better, 13-inch monitor, 256 colours or 256 greyscale, 20Mb hard disk space, double speed CD-ROM drive.
For more details contact Sierra On-Line on 01734 303322.

GRAPHICS 87%
Backgrounds are superb, animations good but a little slow.

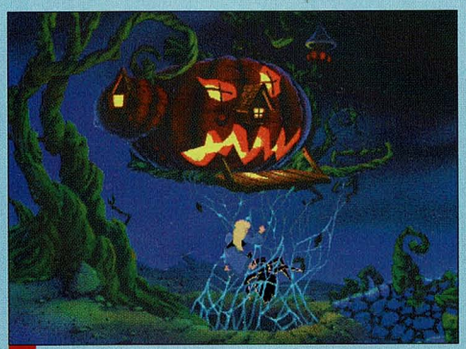
SOUND 85%
There's CD-quality singing and speech. Some tunes get annoying.

GAMEPLAY 73%
Generally testing puzzles, but sometimes a bit methodical.

MACFORMAT RATING 80%

AUTHOR AUTHOR

King's Quest VII, along with the rest of the *King's Quest* series, was designed by Roberta Williams for Sierra On-Line. An accomplished games writer, Williams is the creative force behind the forthcoming interactive horror adventure *Phantasmagoria*. This game is being produced on the scale of a Hollywood production and will feature 24 real actors and actresses, a 135-voice choir and loads of digitised video.



4 The plot thickens as Chapter Four asks: 'Will the real Troll King please stand up?' Now young Rosella is in Oonga Boonga land attempting to patch up diplomatic relations between the Trolls and the Oonga people.

5 'Nightmare in Etheria' is the name of Chapter Five. This could be the craziest one of the lot. As it opens, Valanice is found guilty by a court of kangaroos for failing to be clad in the required fur, feathers or scales.

6 Things have definitely reached the boil in the last chapter, 'Ready, set... BOOM!' Only quick action will save Rosella from the evil spell of nasty old Malecia. Will there be a happy ending? Well, I'm afraid it's entirely up to you.

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...read through all these weighty tomes

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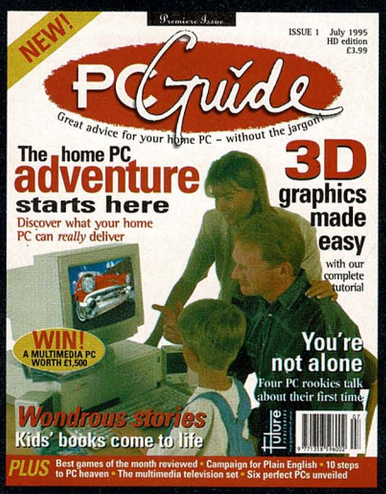
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Don't miss *PC Guide*, on sale Thursday 8th June. It's the business.

PC Guide

She blends in well with the rest of the girls, but those glowing pupils give her away. Yes, your hostess here is a good for nothing bloodsucker.

Night Trap

Yes, it's your chance to save a gaggle of teenagers from having their bodily fluids drained by a bloodthirsty all-American family of vampires...

Have you ever sat watching a horror movie and wished that just as the monster approaches the screaming young starlette you could pull a lever opening a trap-door beneath the beast? Well *Night Trap* gives you the chance to do just that.

Like *Corpse Killer*, *Night Trap* is an interactive B-movie from Digital Pictures. Instead of hunting zombies though, you're thwarting vampires intent on putting a gaggle of giggling teenagers through their blood factory. An entertaining task, if you like that sort of thing!

Sitting at a console controlling eight remote cameras you basically watch what's going on in the vampires' house. When the black monsters that serve the vampires move around, they pass traps that you can trigger from your console. By activating the traps you prevent these ogres from ambushing the girls. But while mommy and daddy bloodsucker have gone out to a charity do, their children are running the place and unfortunately they have the ability to change the access code on the traps.

Night Trap is in fact quite a technical feat. The game consists of a series of video tracks that run simultaneously. If you're looking at the kitchen but there's action going on in the hallway and the upstairs bathroom, you'll miss it all. If you switch to another camera in the middle of something, video is loaded from the CD only at the exact time when you turned over. Unlike other games that attempt this format, it's not you switching scene that prompts the video clips – the story develops with or without you.

The challenge lies in being able to trap the beasts, learning the right access codes and keeping an eye on the girls. The longer you keep the shrieking beauties from having their bodily fluids drained, the longer the game lasts. In the main, it's silly, frivolous fun.

But despite the sophisticated mechanics of *Night Trap*, its content is absolute rubbish, with a very trashy MTV style and just about every line of dialogue a total throwaway. The video, although fast, is chunky and the speech is plagued with blips. Some of the music is okay, but much of it is tiresomely oppressive. *Night Trap* can be challenging, but eventually it gets dull simply because you see all there is to see of the video, learn all the traps and grow tired of the limited interactions in the game – changing camera and pressing the Trap button. While the novelty lasts, it's fun, but this game lacks any sort of lasting grip.

GARRICK WEBSTER

PUBLIC OUTRAGE

Night Trap caused a bit of a stir when it was first released on Sega Mega CD. 'Too violent!' some said. 'Sexist!' cried others. The general consensus was that it wasn't suitable for children. Now what's so objectionable about scantily clad, shrieking, helpless teenage girls being chased by big, nasty monsters intent on serving them up to bloodthirsty vampires?

If you fail to do your job, the ogres ambush the girls and drill holes in their necks. If anyone is killed, it's all over – no second chances in this game.

Not knowing what danger they're in, or how stupid they look and sound, the girls do a karaoke session to the *Night Trap* theme song. American black humour?

NIGHT TRAP

Price: £39.99 – to be confirmed. Out: this month.
Requires: LCIII or better, System 7 or better, 2.2 Mb free RAM, 256 colours, CD-ROM drive.
For more details contact Softline on 0181 401 1234.

MACFORMAT RATING 63%

Activate a trap when one of the monsters is on it and steam billows up, mechanisms spring to action, and he's caught like a rat.

The evil Doctor Hellman started off dissecting frogs and ended up making zombies for the Pentagon. Nothing like a little applied science, is there?

Corpse Killer

You're a commando, your side-kick is a rastafarian voodoo expert and your foe is a necrobiologist with a zombie army.

How do you kill a corpse? You may wonder. Well, if that corpse is a zombie that's flying at you flailing its arms and baring its teeth, my advice is, just kill it.

Yes, *Corpse Killer* is an interactive B-movie about the undead. The sole survivor of a commando mission sent to destroy the zombie menace on the Caribbean Island of Cay Noir, your ultimate goal is to kill the mad necrobiologist Dr Hellman – and his zombie army.

Compared to most other interactive films, this one is quite impressive. Rather than following a single plot line spiced up with superfluous video, you actually have quite a bit of scope to choose your own path through it. For a start, if you don't feel like taking on the zombies straight away, you can go for a jaunt with one of your two sidekicks.

First up is Winston, a rastaman voodoo expert on the island searching for 17th Century pirates' treasure. He can help

Continued on next page

Just be careful in the jungle – odds are the guy above is a zombie, and he's a hell of a lot nastier than a bout of malaria.

you get zombie-bite serum and poison coated bullets with which to kill them. Then there's Julie, a hack out to uncover the link between the Pentagon and Dr Hellman. She'll use you to help her break the corpse-gate story.

But despite the apparent poly-linearity of the experience, *Corpse Killer* is let down by its atrocious playable sections. All you have to do is point your cursor and shoot at the zombies as the camera pans across the grim scenery. Occasionally you have to change your bullets, and they sometimes throw things at you, but it's facile to the point of stupidity. Bad sound, the lack of interesting special effects and crass gameplay sadly strictly limit the 'game' part of the film.

Although the box says *Corpse Killer* is for over 17 year olds, the simplicity and silliness of its content suggest it's really a game for kids. Although there's an abundance of skulls, it's not that violent. For the first few hours, *Corpse Killer* is quite entertaining. If it was £14.99 – the price of a video – it would be a worthwhile buy. But for £40, it might be best to let it rest in peace. **GARRICK WEBSTER**

CORPSE KILLER

Price: £39.99 – tbc. Out: this month.
Requires: LCIII or better, 3.5 Mb free RAM, System 7.0 or higher, 256 colour monitor, double speed CD-ROM drive.
For more details contact Softline on 0181 401 1234.

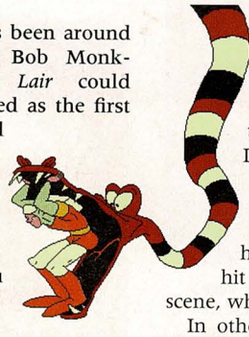
MACFORMAT RATING 54%

Dragon's Lair

Are you daring enough to risk life and/or limb to rescue the princess? Dare you risk putting this in your CD-ROM drive? Now that's the important question.

Be careful you don't get turned to stone while you're pulling a silly face. Oops, too late.

As a game that has been around for longer than Bob Monkhouse, *Dragon's Lair* could easily be described as the first interactive movie, and that's what it is. You sit back and enjoy the lovely animated sequences, supplying the minimum input yourself.



The plot is simple. You play protagonist Dirk the Daring, whose stereotypically beautiful blonde princess, Daphne, has been kidnapped by the malevolent (and no doubt malodorous) dragon Singe. Being a daring sort of chap, off you race to her rescue, and the rest depends on how nimble your digits are.

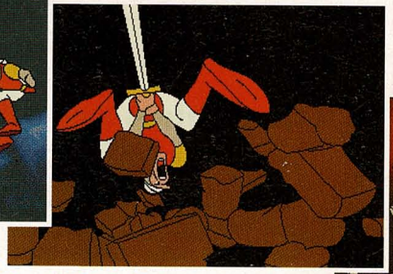
The game is made up of different scenes – which appear in random order – and you're merely required to watch the action and press a key on the keypad at the right time. By doing so you control Dirk's response to the surrounding activities. For example, when a monster is about to kill you, hit [**space**] and you will hit him with your sword. Then hit right and escape to the next scene, where some other delight awaits.

In other words all this game offers is lots of gorgeous graphics and the chance to master your way around the numeric keypad. On slower machines you can reduce the screen size to 320 x 200 pixels, which keeps the action fast. Otherwise the sound loses sync with the pictures, creating a weird echo effect.

Having said that, the game has a strangely addictive quality. You do want to see all the scenes, and doing so is easy – just learn the moves and you're away. Give it a couple of hours of solid play following the hints in the manual, and you'll have done it. **NICK HARPER**

She's large, she's armed, she's got scary looking teeth, she's coming your way and she is mad. You really shouldn't have stood her up like that.

It's time to cast aside any chivalrous thoughts. She's got no sword, but she's looking rather purposeful. Time for a hasty exit.



Too late! Dirk the Daring brushes with death once more, as he rapidly soars, head first and legs akimbo, groundwards. With feet like that he should really have better balance.

This is you, Dirk the Daring, the firm-thighed, swashbuckling hero.of our tale striking a pose.

DRAGON'S LAIR

Price: $59.95. Out:now.
Requires: any colour Mac, 2.5Mb of free RAM, a CD-ROM drive.
For details call ReadySoft, 00 1 905 475 4801.

MACFORMAT RATING 44%

Space Ace

Can *Space Ace* succeed where *Dragon's Lair* failed, and provide a truly interactive movie?

Unfortunately, *Space Ace* uses such sophisticated techniques to bring you its animated wonders that this was the only picture we managed to capture. But all the graphics are of this superb quality, believe us.

Continuing in the *Dragon's Lair* formula, *Space Ace* manages to take you to unprecedented heights of irritation.

The plot goes like this: the evil Commander Borf is attacking Earth, and only two people can save the planet – the beautiful Kimberley and you, Ace. But as you approach Borf's space station, disaster strikes: Kimberley is kidnapped and you are transformed into a weakling called Dexter. To save the world from being condemned to eternal slavery, all you have to do is rescue Kimberley and defeat the dastardly Borf. Easy-peasy.

Again you control the reactions of your character, Ace, by pressing the numeric keypad at the right moments. The difference here is that in *Space Ace*, unlike *Dragon's Lair*, you regularly have to press the key *before* the action has been presented to you. In other words, unless you're some kind of a soothsayer, it is impossible to anticipate the next move. The result? Well, with each life, you'll be lucky if you manage to progress another move.

As with all these interactive 'games', the animation is superb and the graphics are excellent, but so what? As an interactive game that won't let you interact, it's completely frustrating. The weird perspectives often used mean you have no idea which way is which, making it even harder to predict the keystroke required.

This game does nothing but cause a lot of stress. If you want to see some great animation and be fully entertained, then go and buy one of the Disney classics. The interactive element could be changing the volume on your television, or pressing play on the video. It's no less than this has to offer, far more rewarding and you won't tear your hair out with exasperation. Thanks to the prophetic qualities required, this is harder than *Dragon's Lair*, so give yourself a whole afternoon to finish it, or be finished with it.

If you want to see some great animation and be fully entertained, go and buy a Disney classic.

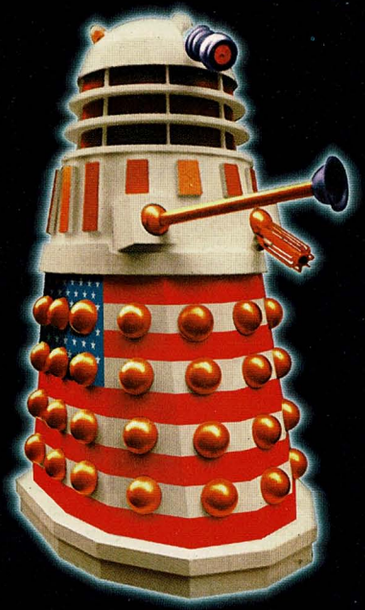
One minor problem – *Space Ace* doesn't work if you have your monitor set to thousands of colours or more. Finding this out was more irritating than the game itself, if that's possible. **Nick Harper**

Space Ace

Price: $59.95. Out: now.
Requires: any colour Mac, 2.5 Mb free RAM, CD-ROM drive.
For details call ReadySoft, 00 1 905 475 4801.

MACFORMAT RATING 36%

RESISTANCE IS USELESS!



HAS DOCTOR WHO GOT A FUTURE?

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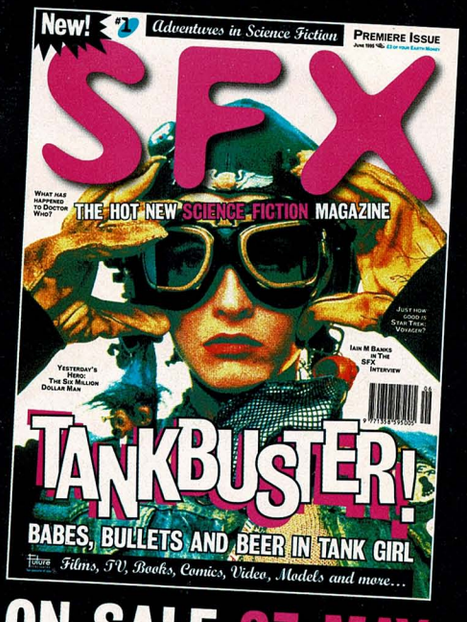
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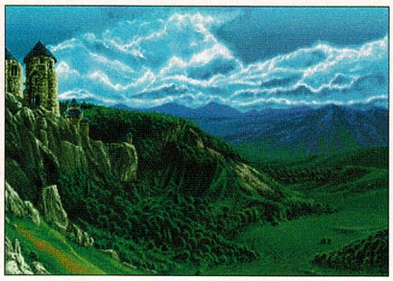
The Ishar Series

Foul things are afoot in the fantasy land of Ishar, and it's up to Paul Pettengale to sort out the good guys from the bad. Shame he doesn't have the gauntlet of cliché protection...



Lovely views, nice neighbours, good selling-on prospects... Oh, and a few dangerous denizens marauding from the East. Still, not to worry.

In a world of black and white, good and bad, where there is no middle-ground, you'd think it pretty easy for hardened adventurer types to deduce who's up to dirty tricks and who's to be trusted. When there are clues large enough to fill a particularly spacious home in the posh area of Guildford plonked in your path every five minutes, and when you've read everything in the 'Fantasy and Science Fiction' section in your local book store, you'd imagine that immersing yourself in a trilogy of not-so-complex fantasy role-playing games would be easy; completing them easier still. Not so when that trilogy has been crafted by the French outfit known as the Silmarils.

The three games which make up the *Ishar* series (*Ishar: Legend of the Fortress*, *Ishar 2: Messengers of Doom*, and *Ishar 3: The Seven Gates of Infinity*) have been hailed as both masterpieces of the RPG genre and over-clichéd rubbish. Both criticisms are based on the same thing: the overwhelming scale upon which the games are based. When you start playing any one of the series, you're almost instantly aware that the completion of the task which has been set is going to take rather a long while, as these games are huge in their scope and level of detail. Each element of the three interlinked plots has been mapped out and planned to perfection. Or, at least, perfection in the eyes of those who are skilled enough to recognise a cliché or three when they see one.

For therein lies the ultimate problem for the *Ishar* series: they're horribly dated in terms of where role-playing and fantasy genres are today. Although detailed, the plots exude simplicity – not in their depth and breadth, but in the vision behind them. It's real 1960s wishy-washy pulp fantasy fare: a band of adventurers set off to a temple in an evil land to kill a bad guy; or, a band of adventurers set off to an evil land to restore peace (by killing some bad guy); or even, a group of adventurers travel across a few different alternative planes of existence in order to kill the spirit of some bad guy they once killed in order to restore peace in some evil place. No, this is hardly the stuff which gets you sweaty in anticipation of the next twist or turn in the Grand Scheme of Things – it's dull and uninspired. Which makes this series, despite its depth, extremely difficult to either warm to or, ultimately, to enjoy. You find yourself quickly adopting the 'I don't give a damn' attitude, and there's nothing quicker than this to kill any involvement in the plot that you may have once had.

Thus begins the road to boredom, and

When this chap looks up and tells you to begone, it's fairly wise to listen. He's evil, he's got red eyes, and he boasts a large scarlet rod.

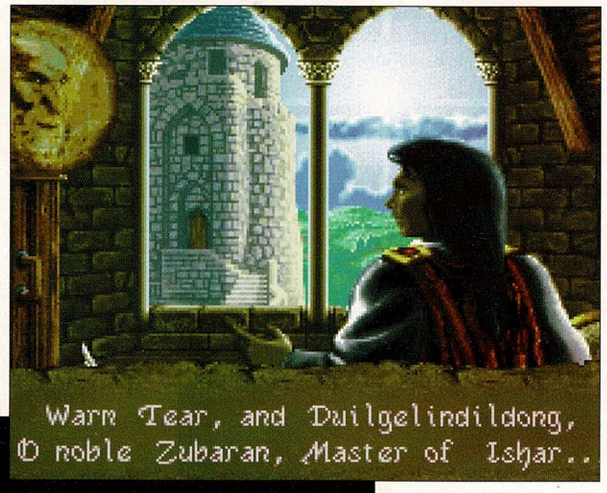
WARM TEAR!
TO THE SOUTH, IN ANGARAHN COUNTRY, THERE IS A NICE LITTLE VILLAGE, ITS TAVERN, 'THE THIRSTY BARBARIAN', IS KNOW MILES AROUND.
ARAMIR

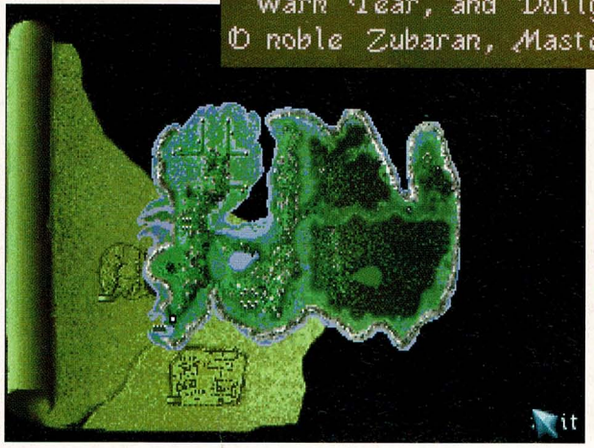
Yes, 'tis a bit of a wimpy name. Warm Tear doesn't really sound like the kind of thing hardy adventurers should be called, does it?

Combat is simplistic in *Ishar One* – being a case of clicking on the Attack button repeatedly and with force.

How embarrassing it must be to have your stomach burst in a ball of blue fire whenever your cape is lifted.

How handy it is to have a golden globe hanging in your room ready to inform you of danger whenever it approaches.





The second of the *Ishar* series introduced an auto-mapping function so that you could easily avoid getting lost (if not bored).

By the time you get to *Ishar 3*, you get to choose your own adventurous party, mixing all manner of fantastical races and occupations. You want a dwarvan sheep-shearer? You got it.

This guy could be taken seriously if it weren't for the fact that he doesn't crack up each time he calls you Warm Tear, and if he grew his arms back.

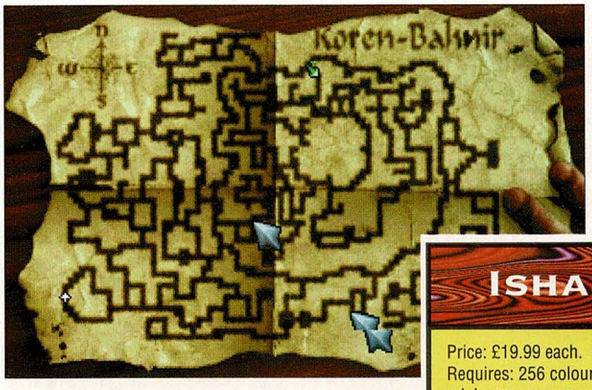
to a point where you become so uninvolved with the games that you start missing the obvious. It may all be black and white, but you reach a point where you're unsure which is which, and it's at that point that everything starts going horribly wrong and you find making progress increasingly difficult. It's a vicious circle, leading downwards towards the slough of despond.

The dated plots are accompanied by outdated graphics, which further adds to the series' problems. As you move there's no continuous update, no smooth scrolling environment – each move is a jump from one location to the next with nothing in the middle, and that becomes a bit of a pain when you jump from what looks like a seemingly innocent area into one infested with various nefarious denizens intent upon the taking of your band's collective lives. This is no rare situation, for battle is prominent within the series, even though the combat system is not one of its strong points. The graphics do improve slightly with the third installment, but not to such a significant degree as to make a difference to the level of enjoyment the games have to offer. The same is true of the music and sound effects... Rather than enhance the atmosphere of each game, the spot-effects and sound just occur, giving the impression that they've only been included because someone thought they ought to be.

It would seem that these games are pretty good value for money, as each one offers a great deal of gameplay per pound. Each game will take an age to complete, and if you can stand the clichés, the poor presentation and the lack of atmosphere that each offers, then who knows, perhaps you might find them a rewarding experience – well, a way of wasting a good few weeks waiting for a decent RPG to appear, anyway. But that's hardly adequate as a basis for recommendation, and so no recommendation is forthcoming. Despite the scope and high levels of detail – the fact that you can manipulate each character in a multitude of ways, that there are dozens of spells to be learned and that the paths of the people you meet and interact with are all crossed in all manner of intricate ways – there remains a feeling that it's all a bit on the sterile side, it's all too perfect in an all-too-clichéd manner, and that rather than providing an endearing world to immerse yourself in, each game simply offers the same thing over and over with less and less to keep you interested. **MF**

THE STORY SO FAR

In *Crystals of Arborea*, Jarel, Prince of the Elves, set out on a quest for the magic crystals in order to oppose the evil power of Morgoth. With the support of his faithful companions, he regenerated the harmony of the world of Arborea and killed Morgoth in a memorable fight... so there you have it!



Confused? You will be. Trying to find your way around the city is not an easy task, especially when each street is devoid of a name.

Hm, steady, this is supposed to be good old-fashioned family fun. All those controls are starting to look a bit complicated. And it's way too cold this time of year for attire of that nature.

Looking like they're performing a Legs Eleven dance routine, these two thugs attempt to have your eyes out. A couple of swift sword swings soon has them.

ISHAR 1 & 2

Price: £19.99 each.
Requires: 256 colour screen, 4Mb RAM minimum recommended.
For more details contact Daze Marketing on 0171 372 7435.

GRAPHICS 42%
Simplistic and stilted in the progression from one scene to the next.

SOUND 40%
Tired and clichéd, adding nothing to the gameplay.

GAMEPLAY 51%
Huge amount to do, but not enough inspiration to do it.

MACFORMAT RATING 47%

ISHAR 3

Price: £29.99.
Requires: 256 colour screen, 4Mb RAM minimum recommended.
For more details contact Daze Marketing on 0171 372 7435.

GRAPHICS 51%
Better, with more detail, but still not true 3D.

SOUND 45%
Clearer than the others in the series, but still rather uninteresting.

GAMEPLAY 50%
Seen it all before with the first two games, and it wasn't much good then.

MACFORMAT RATING 49%

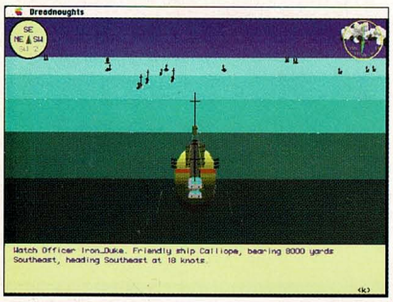
AUTEUR, AUTEUR

With names like Michel Pernot and Pascal Einsweiler, it should come as no surprise to you that the authors of the *Ishar* series are indeed French. Silmarils, the company, are based across the channel and are responsible for such games as *Transartica* and *Robinson's Revenge* (both reviewed in MACFORMAT 25).

Dreadnoughts & Midway

Here are two extraordinary wargames from a man who is extremely knowledgeable on the subject. Sadly, our reviewer is now undergoing psychotherapy to recover from the ordeal.

Here's the plan of action for these two games, which I'm covering together because they share, among many things, the same game engine, author and unquestionable foulness. I'm going to start off nicely and say what they're trying to do, and then get a ton of bile off my chest by ranting for as long as I can. Okay? Here goes then.


Dreadnoughts
Watch Officer Iron_Duke. Friendly ship Calliope, bearing 8000 yards Southeast, heading Southeast at 18 knots.

Don't be fooled, apart from the occasional gun flash, there's absolutely *no* animation in the game. And only about three sounds.

Dr Peter Turcan knows a lot about the last few centuries of warfare – just browsing through one of his game manuals will tell you that. *Dreadnoughts* is based around the hulking sea battles of the Great War, and provides seven scenarios for battles as wide spaced as the Falklands in 1914 and Jutland in 1916. *Midway* covers the decisive battles of World War II that saw the end of the Japanese navy as a cohesive fighting force, giving the US Pacific fleet free-range to whizz around. According to the box, his previous games are used by various armed forces as training aids. Very impressive.

It's a shame then that he's produced two of the lamest, creakiest, and downright dullest wargames I've ever had the misfortune to play in my entire life. Regardless of how well researched they are, or how realistically both sides act and react, it really doesn't matter, as no one in their right mind would bother playing them from tedious start to equally tedious conclusion. It's as if the last decade of computer wargaming never even happened and we've returned to the line graphics and unhelpful interfaces of my ZX Spectrum days.

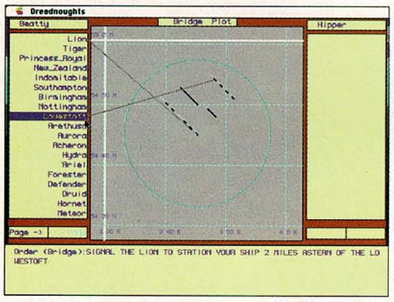
Back to Battleships

Dreadnoughts first then. You have to type in orders, an average one being 'Signal the Tiger to attack the Kaiser' and a particularly mean one being 'Signal the Aurora to station your ship four miles off the starboard bow of the Indomitable.' In an age of pull-down menus, this is clearly bonkers. With so many ships to deal with, it takes you hours to do anything, with your only feeble reward being some shoddy and unimpressive graphics. Getting anywhere in the game took me hours of turn taking and typing out needlessly complex orders. Next.

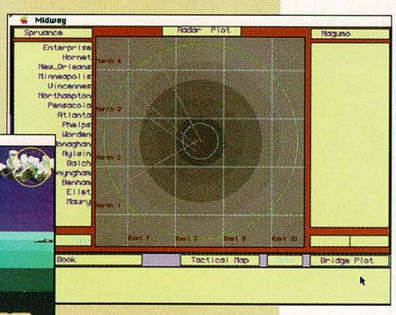
Midway at least promises to be faster as the Americans have got radar and both sides have got planes. Unfortunately, since you're playing in the Pacific (a notoriously large place), the scale cancels out the extra speed. Even when I was controlling both sides and sent them towards each other at top speed, it was an astonishingly poor hour and a half of play before opposing planes managed to attack the fleets. Imagine how much longer it would have been if you were playing the computer and were engaged in a cunning game of hide and seek. At least you click on words to form sentences though. In the world of Turcan, it's as close to progress as you're likely to get.

No, I'm sorry, but after a combined total of some eight hours on these games, I can't envisage any section of society who'd possibly enjoy them. Even the most woefully anal-retentive, obsessed wargamer can see that there's no pace, the presentation's dreadful and they're so horribly complicated that it would take weeks to truly comprehend the sprawling horror of these so-called games. Thanks to my trauma, the only advice is to recommend both of these to be included in the Geneva convention as the unacceptable face of warfare. Avoid at all costs – or should that be 'Signal to readers to station themselves at least 15 miles from port side of games'?

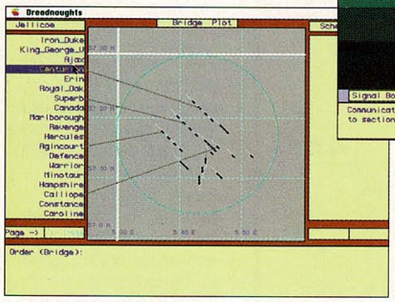
CAMERON WINSTANLEY



Check out the instructions at the bottom of the screen. User-friendly? Nope. User-suicide-inducing? You bet.

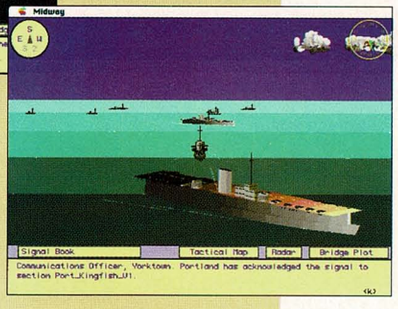


Incredibly, radar fails to speed up the game in *Midway*, as you play over expanses of empty ocean.



This is the only way you can recognise each ship: with little lines. Imagine how confusing this gets in battles.

Curiously, the phrase 'mindblowing excitement' isn't on the game boxes, or, unsurprisingly, inside.



But hey, let's be fair. If you prepare a reconnaissance in *Midway*, you get to see the planes on deck.

DREADNOUGHTS

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MACFORMAT RATING 9%

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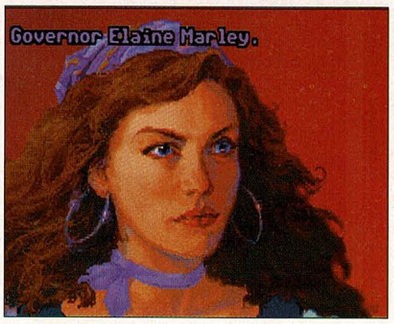


This is the Governor Elaine Marley, the romance element of the game. She's a babe!

The pirate adventure continues with part two of the complete *Secret of Monkey Island* solution. And it's your chance to get paid for being smug, by helping stuck MACFORMAT readers.

Avast, me hearties, for 'tis action and romance on the water ye be lookin' for. Cross my palm with a gold doubloon and I'll tell ye all, for here is part two of the solution to *The Secret of Monkey Island* by Scott Love from Edinburgh. Yo-ho-ho and a bottle of rum and... oh, honestly, it just gets too much sometimes. Thanks, Scott – have a copy of Sierra's voodoo adventure *Gabriel Knight* on us.

The Secret of Monkey Island

Go through town to the Governor's mansion. Add the yellow petal to the meat. Giving this to the piranha poodles sends them to sleep. Go into the mansion and through the latticed door. After the fight scene, find the prison and talk to the prisoner, Otis. After he mentions his smelly breath go and buy some mints from the store. Give Otis a mint and the gopher repellent. He will give you a carrot cake. Open this to find a file.

See that stunningly good-looking bloke with the blonde hair and blue eyes? That's you, that is.

Go back to the Governor's mansion and walk to the gaping hole. After the fight scene you will fall down the stairs. When Fester accuses you of stealing the Idol, tell him the Governor gave it to you. She will come and defend you. Try to leave. Fester will then throw you off the pier. Pick up the Idol and the sword and climb out.

You have completed the three Trials. Now you need a ship and crew.

Go to the Scumm Bar and pick up all five empty mugs. Go into the kitchen and pick up the meat. Fill a mug with grog from the barrel and head for the prison. Be careful as the grog makes the mug melt. As it starts to melt, pour the grog into a new mug. When you get to the prison pour the grog on the lock to let Otis escape.

Go to the Sword Master. Tell her the Governor has been kidnapped. Go to the island. Using the rubber chicken on the cable, cross the chasm. Go to the house and tell Meathook about the kidnapping. Open the last door to see his 'beast' and stroke it.

Head for the used ship emporium. Tell Stan you haven't got much money and you want to buy a ship on credit. Go to see the storekeeper. Say you want a credit note. Tell him you are employed. Watch and note how he opens the safe. The sequence isn't always the same, so use the space bar to pause while you're taking notes. Admit that you don't have a job and tell him to see the Sword Master. While he is away, open the safe. Push is clockwise and pull is anti-clockwise. Take the credit note.

Now go back to Stan's. Ask to see the cheapest ship. When he shuts up, talk extras. Say that you can live without them. Then say, 'enough about extras' and ask him to make you an offer. With the price at 7,300 pieces of eight say, 'forget it'. Go back and Stan will offer you 6,300. If you then offer him 5,000 pieces of eight he will accept.

Go to the dock and meet your crew.

You've now reached Part Two of *The Secret of Monkey Island*: The Journey. Pick up the feather and ink. Pick up the dusty book from the left-hand drawer of the dresser. Leave the room. Climb the rope ladder and pick up the Jolly Roger. Go back to the deck.

Go down the two hatches. Pick up the piece of rope which is hanging over one of the kegs. Open the chest at the bottom right of the screen to find the fine wine. Open the kegs at the left of the room to get the gunpowder, then climb back up the ladder.

Walk down the steps to the kitchen. Pick up the pot from the left sideboard. Open the cupboard. Pick up the cereal and open it to find the toy prize inside. Looking in that reveals the key.

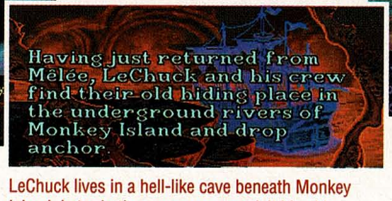
In next month's MACFORMAT: how to reach Monkey Island.

Useless

Two MACFORMAT readers are completely stuck and need your help. **Mrs Hughes** from **Dungannon** is getting nowhere with *Pathways Into Darkness*, despite the tips in issue 19. Meanwhile, **Helen Carter** from **Barnham** in Sussex is well and truly stumped on *Deliverance*. Only a complete solution or downright sneaky cheat can help, so grasp your chance to be smug (and win five pounds or even a game) and write to: Gamebusters, MACFORMAT, 30 Monmouth Street, Bath, Avon BA1 2BW.

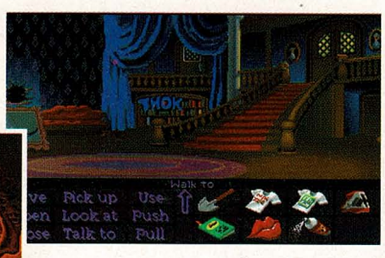
NICK HARPER

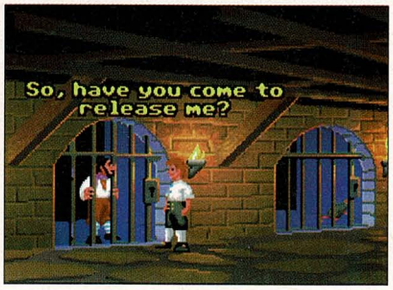
When you're thrown off the pier, pick up the Idol and the sword to escape a watery grave.


Having just returned from Mêlée, LeChuck and his crew find their old hiding place in the underground rivers of Monkey Island and drop anchor.

LeChuck lives in a hell-like cave beneath Monkey Island. Later in the game you can visit his ship.

Once inside the Governor's mansion, the game takes over for a while, sending you into a fight scene.





Recruit Otis the prisoner to join you on your journey to Monkey Island. Not that he's any use, the duffer.

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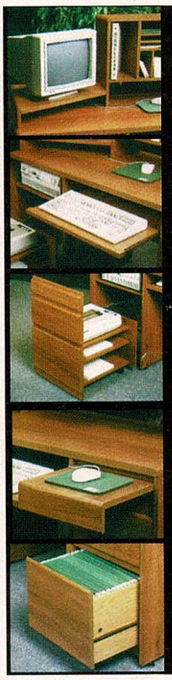

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■ Centri 610 8/80, CD-ROM, 14-inch Trinitron Colour monitor, Yamaha speakers, extended keyboard, *MS Works*, extras, great fast machine – £950. Glasgow ☎ 01505 336738
■ Mac SE 4/40 with StyleWriter, *MS Word 4.0, HyperCard* (version 1.0), exc condition, ideal for word processing – £250. St Albans ☎ 01727 869267 (eve)
■ Mac LCIII 4/80, Performa Plus 14-inch colour monitor, keyboard, mouse, manuals, boxed, exc condition, 14 mths – old £600 ono. Surrey ☎ 01737 761612 (eve)
■ LCII 4/40 with colour monitor, complete with *MS Works*, all boxed & in vgc – £600. ☎ 01908 567980
■ Quantum 80Mb, 3.5-inch internal hard drive, under 2 yrs old, formatted & ready to install – £40. ☎ 0171 937 0747
■ PowerCD with SCSI cable new & boxed. ☎ 01803 864033
■ Monitor Performa Plus 14-inch display, 3 mths old, so still under warranty – £130. ☎ 0171 262 6290
■ Duo Floppy Adapter/AC adapter. ☎ 0181 692 8129
■ Apple ImageWriter LQ inc 2 ribbons – £50; NEC SilentWriter S62P laser printer – £300; Agenda 32K inc Mac kit, finance & spreadsheet cards. ☎ 01494 724865
■ Radius Colour Pivot LE & card for SE 30, an excellent full A4 monitor – will someone please make me an offer! ☎ 01286 870729
■ PowerBook 180c 4/160, FPU, light use only, System 7.5, fax modem, *RAM Doubler, Cricket Presents & Claris Power To Go* – only £1,600. Jeremy, Edinburgh ☎ 0131 667 1912
■ 8Mb 72-pin SIMM, 4Mb 72-pin SIMM, LCIII – 475 – Centris – Quadra – £150 & £75 or £210 for both. ☎ 0161 832 1175 (day)
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■ Performa 475 4/160 and StyleWriter, 14in colour monitor, System 7.5 with mouse & keyboard, boxed as new, 6 mths old – £850. ☎ 0171 252 3870 (after 7pm)
■ LCII 6/160 with 14-inch colour monitor, boxed & in perfect condition, home use only – £475 ono. Coventry ☎ 01203 673963
■ MicroWriter Agenda 64K, leather case, all manuals, power supply – £50, perfect condition. Ken ☎ 0181 937 6182 (day) 01582 29788 (eve)
■ Apple 800K external floppy drive, had home use only – £50; Maths Co-Pro FPU for Mac Classic II – £20. Brighton ☎ 01273 559325

SOFTWARE FOR SALE

■ *PageMaker 5.0a Pro-Pack*, boxed, unused, offers; also Quantum 170Mb external hard disk. Gareth ☎ 0181 441 2780
■ *PageMaker 4.2*, unused, disks still sealed, boxed with manuals – £250 inc delivery. Simon ☎ 01865 57774 (after 6pm)
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■ *Digital Darkroom Greyscale Photo Editor*, also adds colour to greyscale images – £60; *Typist* + Greyscale Hand Scanner with OCR – £160 as new, extras. ☎ 0181 903 9808
■ Mac CD-ROMs, boxed & sealed; *Lunicus* – £15; *Busy Town* – £14; all inc p&p, unwanted gift. ☎ 01536 724730
■ *Theme Park* CD-ROM, as new, inc box & manuals. Bob Skipworth ☎ 01772 743131 (day) 01772 431930 (eve)
■ *Acta 7* (outliner), *After Dark, More After Dark, AutoSave V2.0, DAtabase (DA Database), Daymaker 2.0* (PIM) all £5ea; *DesignCad 2D/3D V3* (CAD) £15; *DiskDoubler V3.7* £5; *FileForce 1.1* (relational database) £20; *HyperCard 2.0* £5; *MacSchedule 3.0* £10; *More V3.1* (presentation) £15; *Now Utilities 1.1* or *2.0* £10; *OnLocation 2.0* (file finder & viewer) £5; *Spectre* (tank game) £5; *StrataVision 3D 2.5* (modeller) £75; System 7.1 £10; *Touchbase/Datebook Pro 3.0* (PIM) £20; *Virtual V2.02* (Virtual Memory) £5; ☎ 01494 724865
■ *MobileCalc* for Newton, unopened gift, offers/swaps. W London ☎ 0181 841 3871
■ *Macromind Director V4.0*, registered but transferable – £550 ono; *Autoroute Express* – £50; *4D First* – £50; CD300E external twin speed CD-ROM – £100; Performa etc carry case – £50. ☎ 01430 441759
■ *SoundEdit Pro*, boxed & unused – £50. Ken ☎ 0181 937 6182 (day) 01582 29788 (eve)
■ *MacWrite Pro 1.5* – £100; *Claris Organizer* UK version – £30; *Expert Landscape Design* – £30, all boxed with manual; *SoftAT DOS Emulation* – £75. Richard ☎ 0181 654 2849 (eve)
■ *At Ease 1.0* – £10; *Prince of Persia* – £15. Lesley ☎ 01332 515454
■ *ClarisImpact*, the complete business graphics manager, brand new & shrink-wrapped, unwanted gift – £150, will consider swap for *ClarisWorks 3.0*. Emma ☎ 0171 237 5086
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WANTED

■ 72-pin SIMM, 4Mb for LCIII, will pay £50-£60; also want either Power CD of CD300 – £100. Darren ☎ 01836 651114
■ Any Mac printer in working condition for indigent student, in London area. Mordie ☎ 0181 806 2726 (leave message)
■ Cheap printer for use with old SE, must be in working order, Wilts area. ☎ or fax 01249 822411
■ Mac Assembler software, books, articles (pref. shareware) wanted by new user, ex of PC experience. ☎ 01482 43238
■ Greyscale or colour monitor & card for SE30. Richard ☎ 01642 711800
■ Native Software CD-ROMs & games for new PowerMac; *Virex 5.5; RAM Doubler 1.5, Stacker* – brand new, unregistered, sealed, reasonable price paid. ☎ 0171 720 4352
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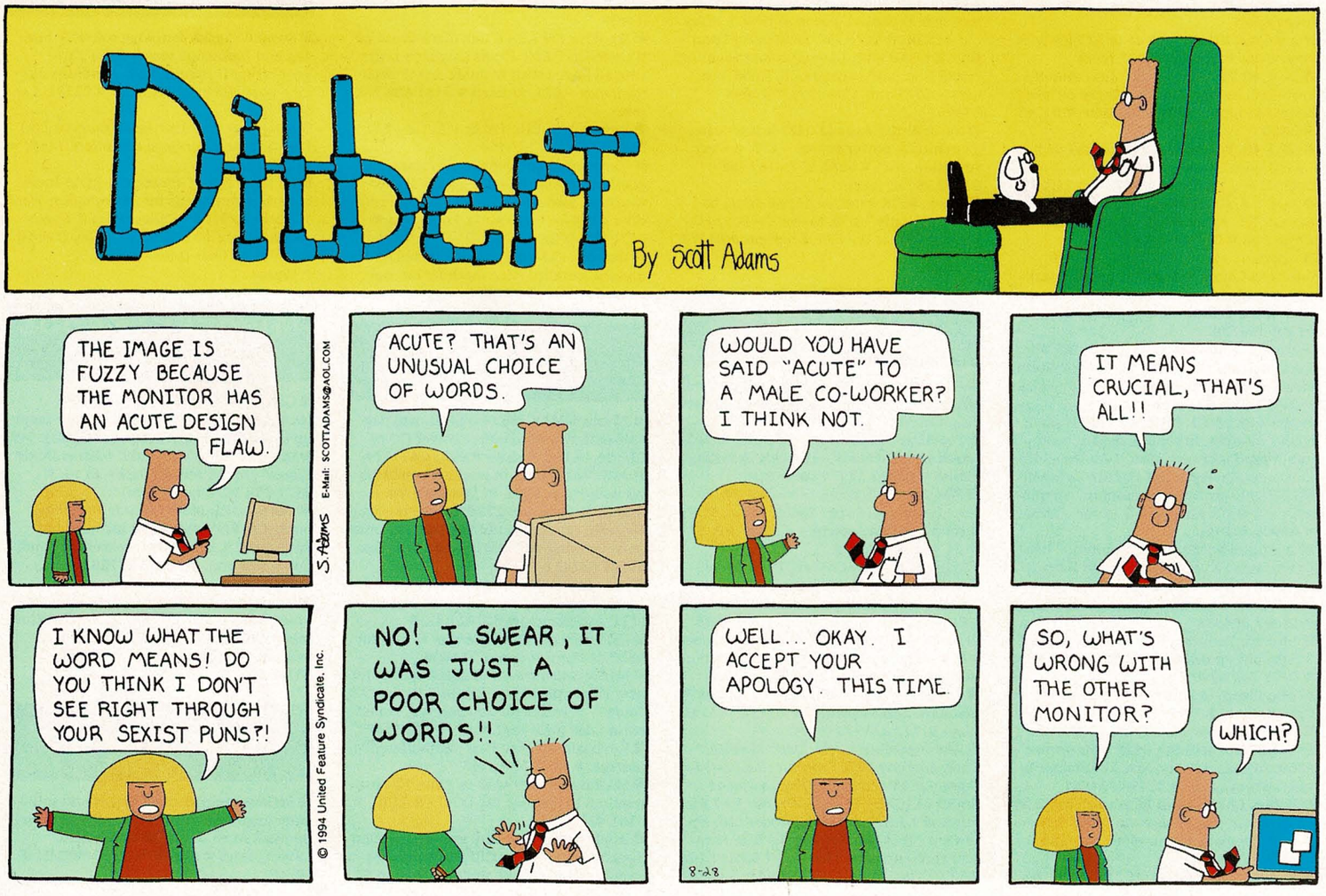
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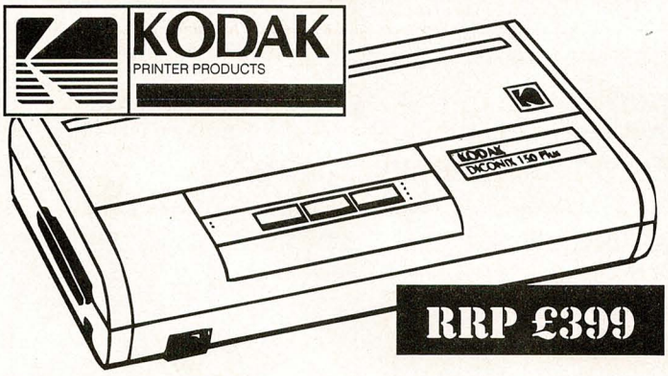

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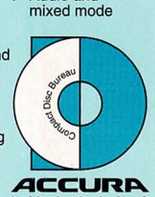

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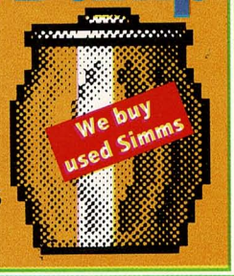

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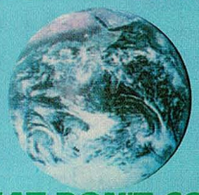

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Appearing as scheduled – the Tiny Zone!

Hello and welcome again to the Tiny Zone, the section of MACFORMAT that goes where other pages wouldn't even fit. Now, if you read this page regularly you might have been asking yourself recently, 'What became of that review of this multi-lingual word processor then?' Or 'Where's the *HyperCard* vs *SuperCard* review?' Or even, if your memory is very long indeed, 'When is that round-up of type manipulation software going to appear?' Well, Tiny Zone is not afraid of tackling big questions. You see, there's a lot of complications behind the scenes. Unlike some other magazines we could name, MACFORMAT does not review unfinished products or beta test versions of software, so we are at the mercy of producers to supply their products. If a release is delayed, so is our review. We normally schedule reviews (and tell you they're coming) only if we actually have the product in our hands or are very confident of getting hold of it in time to test thoroughly and write up before our ever-looming deadlines, but sometimes we get caught out – or let down. Sometimes we can make phone call after phone call, and a copy of the product just doesn't arrive, as in the case of certain type manipulation programs. Or contrariwise, sometimes a new version is announced while we are testing the current one, which means our review wouldn't be very fair or much help to you in deciding whether to buy the one that's in the shops by the time the review appears. That's what happened with *WorldWrite* and *HyperCard*. So when we say 'coming next month', better add 'if all goes according to plan'. Which of course it alwa

NEXT MONTH

Go global!

Get connected – we begin a new series covering everything you need to know about the Internet. Stay in touch wherever you are – portable Macs & peripherals you can take on holiday with you.

Free Net roadmap

Find your way round the Internet – our map lists all the points of interest and how to reach them!

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Win one of ten videos of the award-winning Wallace and Gromit films from Aardman Animations, worth £9.99 each, courtesy of BBC Video! Just answer this simple question: who is the animator and director responsible for Wallace and Gromit? Is it (a) Peter Lord, (b) Nick Park, or (c) Walt Disney? Send your answer on a postcard or sealed envelope to 'Wallace and Gromit', MACFORMAT, 30 Monmouth Street, Bath BA1 2BW. Our usual rules apply. Please state which of the two titles you'd prefer.

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MACFORMAT 27 goes on sale on Thursday 6 July

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Win a Samsung 17GL 17-inch colour monitor

Get the big picture with a Samsung SyncMaster 17GL 17-inch colour monitor! With Mac connector it's worth £570, and you can win one here, courtesy of Gasteiner Technologies.

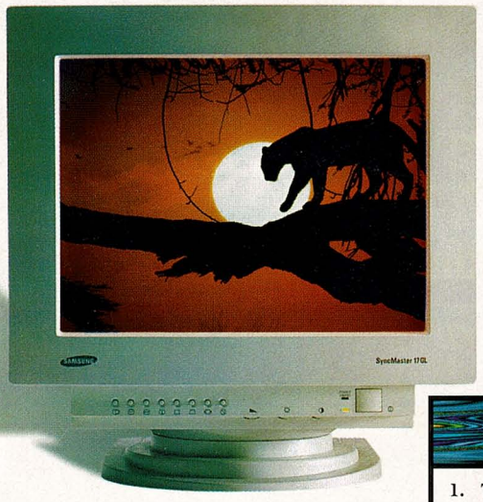
No matter what you use your Mac for, a big 17-inch monitor is sure to make your life more pleasant and more productive – text will become more readable, graphics easier on the eye, multimedia and games more absorbing an experience. In our monitors group test this issue, we award the Samsung 17GL SyncMaster a MACFORMAT Classic award for its outstanding combination of features and value-for-money.

The Samsung 17GL puts the most frequently used controls on the front panel, where you need them. As well as controls for contrast and brightness, buttons here enable you to adjust the screen image's horizontal and vertical position and size, as well as compensate for both 'pincushion' and 'trapezoid' distortion, so that straight lines really are straight even at the very edges of the picture. To help you keep track of adjustments, an On Screen Display (OSD) system gives you a comprehensive readout of current settings. The power switch is on the front too, in easy reach, as is the degauss button, making it simple to de-magnetise the tube and help prevent colour impurities caused by magnetic fields. (So now you know...)

The 17GL is capable of display resolutions all the way up to 1,280 x 1,024 pixels. It can automatically detect the incoming signal and adjust to a factory preset optimum image size and position. If you prefer to alter these presets, however, you can store up to 11 user-definable settings and recall them at the press of a front panel button.

But that's not all! The 17GL is one of Samsung's 'Green Series Monitors', which means that it is not only well-featured; it is also designed to be ergonomic and power-efficient. It has a tilt-and-swivel base, high refresh rate for reduced flicker, a flat screen for reduced glare, and an anti-static CRT coating. No ozone depleting chemicals have been used in the manufacture of the monitor or its components, its radiation levels are so low that they conform to Sweden's strict standards, power consumption is drastically reduced (maximum 100W in normal use), and there's a built-in PowerSaver system with not just a 'Stand-by' but also a 'Suspend' mode (consuming less than 30W) for minimal power wastage.

This fabulous monitor, complete with a Mac connector, sells for £570. Now, that makes the SyncMaster 17GL tremendous value for money, but here's an even better bargain. You could win your own Samsung SyncMaster 17GL for the price of a stamp, courtesy of Gasteiner Technologies. All you have to do is answer the three simple questions below and send us your answers on a postcard or the back of a sealed envelope. The closing date for receipt of entries is Friday 14 July 1995.



The Rules

Employees of Samsung, Gasteiner Technologies, Future Publishing Ltd or associated companies, and their families, are not eligible to enter. Multiple entries are not allowed, unless they are on a trapezoidal pincushion. The editor's decision is final, there is no cash alternative, and no correspondence will be entered into. Please state if you don't want your name added to a mailing list.

THE QUESTIONS

1. The Samsung SyncMaster 17GL is capable of a display resolution of up to how much?
(a) 640 x 480 pixels
(b) 1,024 x 768 pixels
(c) 1,280 x 1,024 pixels

2. To make adjusting the monitor's settings an easier job, the Samsung SyncMaster 17GL features not only a range of front-panel controls but also the OSD system. What does OSD stand for?
(a) On Screen Display
(b) Over-Scan Density
(c) Obviously Silly Definition

3. Which of the following are *not* features included in the Samsung SyncMaster 17GL?
(a) Tilt-and-swivel base, reduced-glare flat screen and anti-static cathode ray tube coating
(b) Low power-consumption 'Stand-by' and 'Suspend' modes
(c) Integral ozone detector, pyramidal ioniser and office-size air freshener

Easy, right? Send your answers (with your name and address!) on a postcard or sealed envelope to: 'Play it again, Samsung' competition, MACFORMAT, 30 Monmouth Street, Bath BA1 2BW.

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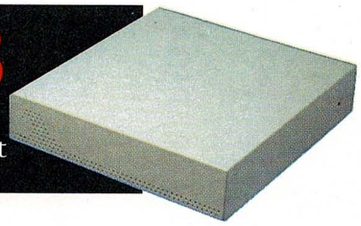

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MACFORMAT

ON THE DISK THIS MONTH...

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MACFORMAT
DISK 24 JULY 95
Animation!
and Disinfectant 3.6
AddressBook 3.7 ■ GnuChessMac 4.0 ■ Greg's Buttons 3.6.1 ■
Poker 3.0 ■ F1GP ■ FindText 1.2 ■ MaciGame 1.6 ■ MenuBall
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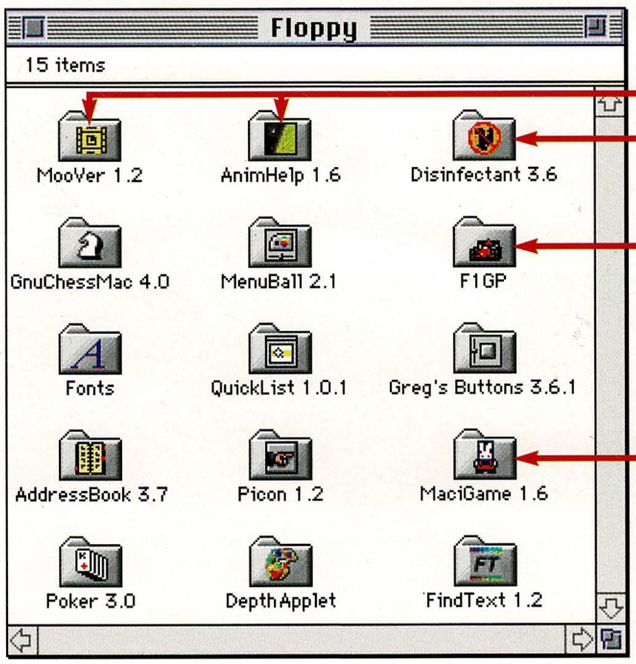
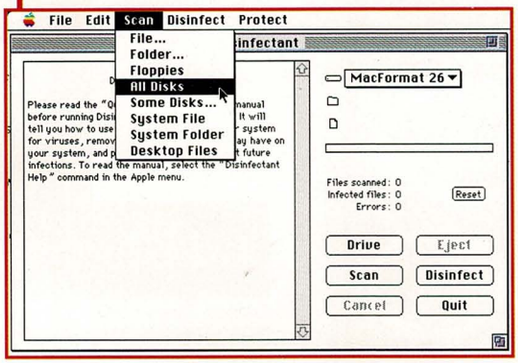


ANIMATION

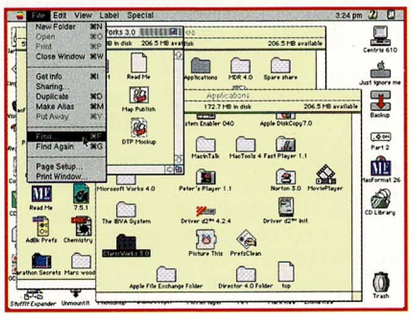
This month we have two excellent shareware animation programs – along with our cover feature, they're all you need to have a go yourself. Both of them are really simple to use, and take only five minutes to learn. Requires: Any Mac



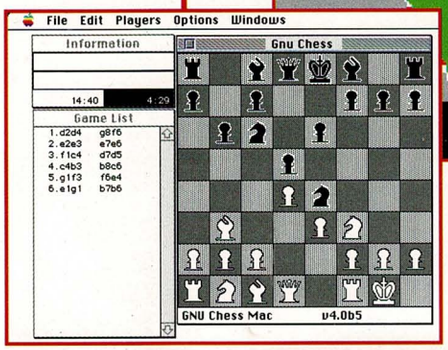
DISINFECTANT 3.6

Disinfectant is the definitive virus detection program which will protect your Mac from all known viruses – and it's completely free! It couldn't be simpler to use – just double-click its icon and the program takes care of the rest. This is an essential piece of software for every Mac. Requires: Any Mac

UTILITIES



Greg's Buttons 3.6.1 is the upgrade of one of the most popular shareware utilities ever – it'll customise your Mac's interface to your taste. You'll never have any excuse for losing a phone number again with *AddressBook 3.7*, a very professional database tailored to organising your life. *FindText 1.2* has the ability to look inside files on your hard disk for any specified text, helping you find a file, even when you can't remember its name. *QuickList 1.0.1* provides a floating palette containing all your most commonly used files and application. *Picon 1.2* creates custom folders automatically, and *DepthApplet* enables you to change the number of colours your screen displays on the fly. Finally we bring you two shareware fonts, *Computer Modern Singles* and *Ogilvie*, to enliven your documents.



GAMES

Four great games this month. *GnuChessMac 4.0* is the latest version of the free chess game that can beat all but the best players, and works on any Mac. *F1GP* is a two-player racing game with a split screen that uses several clever tricks to work fast on any colour Mac. *MaciGame 1.6* is a fascinating puzzle game with a new and very clever concept, and *Poker 3.0* is a computer rendition of the classic card game.